Index to
TRANSACTIONS OF THE ASME

Volume 87, 1965

There are five journals issued quarterly: **Journal of Engineering for Power** in January, April, July, and October; **Journals of Engineering for Industry** and **of Heat Transfer** in February, May, August, and November; **Journals of Basic Engineering** and **of Applied Mechanics** (Volume 31) in March, June, September, and December.

A

ABLATION
Ablation of glasses containing a surface-active compound....AM 459
Ablation of reinforced plastic for heat protection....AM 477, (D) AM 951

ABRASIVE MACHINING. *See* GRINDING

ACKERMANN, P. C.
Application of self-excited machine-tool chatter theory: contribution to machine-tool chatter research—I....I 471

ACOUSTICS
Response of a submerged cylindrical shell to an axially propagating step wave....AM 788
Sound radiation from submerged cylindrical shells of finite length....I 393

ACTUATORS. *See* SERVOMECHANISMS

ADAMS, D. P.
Analysis of errors in the double Hooke joint (D)....I 257

ADAMS, PAUL H. (author)
Experimental stress analysis and motion measurement (BR)....AM 238

ADKINS, R. WAYNE
Lubrication phenomena in spur gears: capacity, film thickness variation, and efficiency....B 655

AERODYNAMICS
Flow and interference effects of a body of revolution and its stabilizing surfaces when at a small angle of attack....B 941
On detached shocks for blunt bodies at small angles of attack....AM 271

AIRCRAFT
Analysis of lift augmentation of vertical solid jets in proximity of the ground....AM 263

ALBRECHT, PAUL
Dynamics of the metal-cutting process..I 429

ALDRICH, E. W.
A reappraisal of the critical constants for water....HT 266

ALEXANDER, J. M. (author)
Manufacturing properties of materials (BR)....AM 478

ALFORD, J. S.
Protecting turbomachinery from self-excited rotor whirl....P 333
Shaft whirl induced by rotor internal damping (D)....AM 233

ALLEN, R. E.
Creep and rupture behavior of low-alloy steels in high-pressure hydrogen environment....B 313

ALUMINUM
Plane-strain fracture toughness of high-strength aluminum alloys....B 904

AMANN, CHARLES A.
Slip factor of a radial-bladed centrifugal compressor (D)....P 188

AMBA-RAO, C. L.
On the vibration of a rectangular plate carrying a concentrated mass (AC)....AM 476

AMOS, L. G.
A four-bar linkage adjustable for variable straight-line motions....I 287

AMSLER, ROLF
Slip factor of a radial-bladed centrifugal compressor (D)....P 189

ANGONA, F. A.
Drill-string vibration attenuation and its effect on a surface-oscillator drilling system....I 110

AOKI, MASANAO
On performance losses in some adaptive control systems: 1....B 90
Successive generation of Chebychev approximation solution....B 17

P	Power
I	Industry
HT	Heat Transfer
B	Basic
AM	Applied Mechanics
(D)	Discussion of paper
(AC)	Author's Closure
(BR)	Book Review

APPL, F. C.
Fundamental frequency of simply supported rectangular plates with linearly varying thickness..AM 161, (AC) AM 953

ARCHER, R. R.
On the orthogonality condition of axisymmetric vibration modes for shells of revolution....AM 447, (AC) AM 954
On the vibration and stability of finitely deformed shallow spherical shells..AM 116

ARENZ, R. J.
Two-dimensional wave propagation in realistic viscoelastic materials....AM 303

ARGON
Thermal conductivity of nitrogen and argon....HT 177

ARIARATNAM, S. T.
Vibration of unsymmetrical rotating shafts....AM 157

ARMIENTO, D. F.
Plane-strain fracture toughness of high-strength aluminum alloys....B 904

ARNOLD, G. M.
Radiation from a directional source: beam divergence in solar simulators (D)....P 269

ARPACI, V. S.
Effect of longitudinal oscillations on free convection from vertical surfaces....AM 183, (AC) AM 717

ASHBROOK, R. L.
High-temperature, cobalt-tungsten alloys for aerospace applications....I 9

ASHFORD, W.
Hydrostatic extrusion (D)....I 494

ASTRODYNAMICS. *See* SPACE AND SPACE VEHICLES

ATKINSON, C. P.
Study of the nonlinearly related modal solutions of coupled nonlinear systems by superposition techniques....AM 359

ATTIG, R. C.
Pilot-plant investigation of factors affecting low-temperature corrosion in oil-fired boilers....P 197

AUSMAN, J. S.
Characteristics of herringbone-grooved gas-lubricated journal bearings (D)..B 576
On the behavior of gas-lubricated journal bearings subjected to sinusoidally time-varying loads....B 589

AUSTIN, T. C.
Analysis of errors in the double Hooke joint....I 251

AUTOMATIC CONTROL
The application of computing technique to automatic control systems in metallurgical plant (BR)....I 522
Choice of time for zeroing a disturbance in a minimum-fuel-consumption control problem....B 29
Further results on parametric excitation of a dynamic system...AM 373, ...(D) AM 956

AUTOMATIC CONTROL (*continued*)
An integral method of Liapunov function generation for nonlinear autonomous systems....AM 569
Investigation of optimal control with a minimum-fuel-consumption criterion for a fourth-order plant with two control imputs; synthesis of an efficient suboptimal control....B 39
A method for the determination of the domain of stability of second-order nonlinear autonomous systems (D)....AM 230
Near optimal control in the presence of small stochastic perturbations....B 103
On a problem of Letov in optimal control....B 81
On performance losses in some adaptive control systems: 1....B 90
On the almost sure stability of linear dynamic systems with stochastic coefficients....AM 365
On the control of linear systems with pure time delay....B 74
On the formulation of adaptive optimal control problems....B 125
Optimal bounded control of linear sampled-data systems with quadratic loss....B 135
Optimum nonlinear control for step and pulse disturbances....B 95
Parameter variation problem in state feedback control systems....B 120
Power-transfer characteristics for compressible flow from a stationary nozzle to a detached receiver....B 23
Successive generation of Chebychev approximation solution....B 17

AVITZUR, B.
Analysis of metal extrusion....I 57
Hydrostatic extrusion....I 487
Tube sinking and expanding....I 71

B

BACK, L. H.
On constant-property turbulent boundary layers with variable temperature or heat flow at the wall....HT 151

BACKER, W. R.
Grinding....I 518

BAILEY, N. P.
Energy storage in metals at high pressures....B 385

BAIN, R. W.
Convective mass transfer (BR)....AM 238

BAKER, B. R.
Closed forms for the stresses in a class of orthotropic wedges....AM 26

BAKER, E. J.
Transient heat conduction at high thermal flux....HT 49

BAKER, R. M. L., JR.
Orbital dynamics of space vehicles (BR)....AM 238

BAKER, W. E.
Vibration frequencies for uniform beams with central masses....AM 711

BALACHANDRA, M.
Large deflections of clamped plate by modified Fourier series....AM 943

BALLS. *See* SPHERES

BANKOFF, S. G.
Laminar film condensation on a porous horizontal tube with uniform suction velocity....HT 95

BARCROFT, F. T.
Action of neutral organic phosphates as EP additives....B 761

BARINKA, L. L.
Initial phases of damage to test specimens in a cavitating venturi....B 453

BARKAN, PHILIP
Motion control for a series system of "N" degrees of freedom using numerically derived and evaluated equations (D).I 203
A spring-actuated, cam-follower system: design theory and experimental results .....I 279

BARLOW, E. J.
Externally pressurized foil gas bearings .....B 986

BARON, M. L.
Sound radiation from submerged cylindrical shells of finite length.....I 393

BARONET, C. N.
Apparatus for measuring thrust produced on rotating body immersed in a liquid .....AM 201, (AC) AM 953

BARRON, R. F.
Heat and mass transfer to a cryosurface in free convection.....HT 499

BARS. *See also* STRESS AND STRAINS
An elastic-plastic curved-bar analysis .....B 894
Impact buckling of a thin bar.....AM 315
Torsion of inhomogeneous elastic prismatic bars.....I 391
Vibration frequencies of tapered bars and circular plates (D).....AM 234

BAUDRY, R. A.
Low-cycle fatigue life of turbine-generator retaining rings determined by stress-cycling tests.....B 245

BAUER, FRANCES
Bending of rectangular plates with finite deflections.....AM 821

BAUER, LOUIS
Bending of rectangular plates with finite deflections.....AM 821

BAXTER, I.
Determination and significance of gaseous-fuel octane numbers.....P 166

BAYLEY, F. J.
Heat transfer characteristics of the closed thermosyphon.....HT 30

BAYLOR, J. L.
Sandwich shells of arbitrary shape (D) .....AM 232

BEACHEM, C. D.
Electron fractographic studies of mechanical fracture processes in metals .....B 299

BEAMS
An approximate analysis of deflections of beams in creep bending.....B 899
Dynamic response of beams with lumped parameters.....AM 453
Large deformation of a rigid, ideally plastic cantilever beam.....AM 295
On the bending problem of prismatical beam by terminal transverse load .....AM 210
On the free vibration of a beam on a nonlinear elastic foundation.....AM 445
Plastic deformation of impulsively loaded straight clamped beams.....AM 7
Rigid-plastic beams under uniformly distributed impulses.....AM 481
Transverse vibration of an Euler beam carrying a system of heavy bodies.AM 434
Traveling force on a Timoshenko beam .....AM 351
Vectorial derivation of the equations for small vibrations of twisted curved beams.....AM 439
Vibration frequencies for uniform beams with central masses.....AM 711

BEARINGS. *See also* LUBRICANTS AND LUBRICATION
An approximate solution for the infinitely long, gas-lubricated slider bearing .....B 1085
Bearing materials and solid lubricants .....B 795
Characteristics of herringbone-grooved gas-lubricated journal bearings.....B 568
Contributions to the determination of the real clearance in sliding bearings.....B 781
Design and performance of gas-pressurized, spherical, space-simulator bearings.....B 604
Dynamically loaded journal bearings: mobility method of solution.....B 537
Effect of external pressurization on self-acting foil bearings.....B 631
Externally pressurized bearings with inherent friction compensation....AM 285
Externally pressurized foil gas bearings .....B 986
Fretting corrosion caused by vibration with rolling bearings stationary.....B 713
Frictional characteristics of liquid hydrostatic journal bearings.....B 163
Gas-lubricated bearings (BR).....AM 718
Gas-lubricated stepped thrust bearing—a comprehensive study.....B 213
Investigation of a partial-arc pad bearing in the superlaminar flow regime..B 145, ...(D) B 1090
An investigation of self-acting foil bearings.....B 837

BEARINGS (*continued*)
Linearized PH stability theory for finite length, self-acting, gas-lubricated, plain journal bearings.....B 559
Magnetohydrodynamic parallel-plate slider bearing.....B 778
Magnetohydrodynamic squeeze-film bearings.....B 805
Misalignment torques of hydrodynamic gas-lubricated journal bearings....B 193
On hydrodynamic instability of gas-lubricated journal bearings.....B 579
On the behavior of gas-lubricated journal bearings subjected to sinusoidally time-varying loads.....B 589
Pressurized fixed-orifice gas journal bearing in plane vibration.....B 264
The role of microslip for freely rolling bodies.....B 724
The short gas-lubricated journal bearing .....B 1087
Solution of the stability problem for 360 deg self-acting, gas-lubricated bearings.....B 199
Stability analysis of gas-lubricated, self-acting, plain, cylindrical, journal bearings of finite length, using Galerkin's method.....B 185
Static and dynamic characteristics of the spiral-grooved thrust bearing.....B 547
Study of anisothermal short journal bearings with non-Newtonian lubricants.....AM 781
Theoretical solution as a boundary-value problem for externally pressurized porous gas bearings.....B 622
Theory of externally pressurized circular thrust porous gas bearing.....B 613
Theory of the infinitely wide, perfectly flexible, self-acting foil bearing.....B 831
Thermal effects in contact fatigue under oscillatory normal load.....B 177
Thermal wedge lubrication of parallel surface thrust bearings.....B 823
Torque produced by misalignment in short lubricated bearings.....B 847
A variational principle applied in the plane slider bearing.....B 1081

BECK, J. V.
Inverse problems in transient heat conduction (D).....AM 472

BECKER, E. C. H.
Vibration frequencies of tapered bars and circular plates (AC).....AM 235

BECKER, HERBERT
A bonded grip polariscope for photoviscoelasticity.....AM 702

BECKER, WILLIAM
Bending of rectangular plates with finite deflections.....AM 821

BECKERS, A.
Investigations of forced-convection liquid-cooled gas-turbine blades (D) .....P 70

BECKETT, R. E.
Experimental determination of the elastic behavior of orthotropic plates (D)...I 317

BECKMAN, W. A.
A photographic study of boiling in an accelerating system.....HT 374

BEER, F. P.
On the distribution of rises and falls in a continuous random process.....B 398

BEGGS, J. S.
An iterative method for the displacement analysis of spatial mechanisms (D).AM 220
Application of dual-number quaternion algebra to the analysis of spatial mechanisms (D).....AM 221

BELL, J. C.
A numerical solution for the pressure, temperature, and film thickness between two infinitely long, lubricated rolling and sliding cylinders, under heavy loads (D).....B 704

BELLMAN, RICHARD
Differential- und integral-ungleichungen (BR).....AM 477

BEN-AMOZ, M.
On a variational theorem in coupled thermoelasticity.....AM 943

BENDING. *See also* DEFORMATION
An approximate analysis of deflections of beams in creep bending.....B 899
Bending of rectangular plates with finite deflections.....AM 821
On nonlinear bending of a plate strip...I 406

BENEDICT, R. P.
Flow with losses.....P 37

BENJAMIN, T. B.
Significance of the vortex breakdown phenomenon.....B 518, (AC) B 1091

BENNETT, J. A.
A set of fatigue failure criteria (D)....B 342

BENNETT, M. D.
Fluid-metering device for measuring dive rate of a vehicle traveling in water .....B 58

BERNSTEIN, E. L.
On large-deflection theories of plates .....AM 695

BERT, CHARLES W.
Plastic tensile instability in pressurized shells of revolution.....AM 449

BEVANS, J. T.
Radiation exchange in an enclosure with directional wall properties.....HT 388

BIEBER, H. E.
Effect of oxidation on boundary friction of steel in hydrocarbon media and critical friction duties under which cold and hot seizure (or welding) develop (D).....B 745

BIHELLER, H. JOSEPH
Radial force on the impeller of centrifugal pumps with volute, semivolute, and fully concentric casings.....P 319

BIOT, M. A. (author)
Mechanics of incremental deformation (BR).....AM 957

BIRD, G. A.
Finite wave propagation in deformable tubes.....AM 207

BIRKEBAK, R.
Film-cooling effectiveness with injection through a porous section (D)....HT 330

BIRKEBAK, R. C.
Effects of roughness of metal surfaces on angular distribution of monochromatic reflected radiation.....HT 85

BISHOP, A. A.
Heat transfer to supercritical water in smooth-bore tubes (D).....HT 483

BLATHERWICK, A. A.
High-temperature rupture, fatigue, and damping properties of AISI Designation 616 (type 422 stainless) steel.....B 325

BLACKSHEAR, P. L., JR.
Experimental measurements of mass transfer from a rotating disk in a uniform stream.....HT 422

BLEICH, H. H.
Longitudinal impact of a semi-infinite, cylindrical, viscoelastic shell.....AM 813

BLOK, HARMEN
Measurement of surface temperatures on gear teeth (D).....B 651

BOBCO, R. P.
Radiation from a directional source: beam divergence in solar simulators.P 259

BODGER, W. K.
An experiment with aspect ratio on a means of extending the useful range of a transonic inlet stage of an axial-flow compressor (D).....P 123
Protecting turbomachinery from self-excited rotor whirl (D).....P 343

BODLEY, W. E.
Finite wave propagation in deformable tubes.....AM 207

BOGDANOFF, J. L.
Further results on parametric excitation of a dynamic system (D).....AM 956

BOGNER, F. K.
On the orthogonality condition of axisymmetric vibration modes for shells of revolution.....AM 447, (AC) AM 954

BOILER CORROSION. *See also* CORROSION
Boiler flue-gas measurements using a dewpoint meter.....P 8
Fuel-ash corrosion and its effect on boiler design.....P 210
Gas-side corrosion in coal and oil-fired utility units.....P 250
Pilot-plant investigation of factors affecting low-temperature corrosion in oil-fired boilers.....P 197
Prevention of residual oil combustion problems by use of low excess air and magnesium additive.....P 229

BOILERS
Elimination of destructive, self-excited vibrations in large, gas and oil-fired utility units.....P 223
Hydrogen evolution and steam dissociation in steam generators.....P 405

BOILING
Correlation of sound generation and heat transfer in boiling.....HT 436
Measured temperature profiles within the superheated boundary layer above a horizontal surface in saturated nucleate pool boiling of water.....HT 333
Numerical techniques for boiling flow stability analyses.....HT 311
A photographic study of boiling in an accelerating system.....HT 374
Photographic study of nucleate pool boiling on a horizontal surface.....HT 17
Subcooled swirl-flow boiling and burnout with electrically heated twisted tapes and zero wall flux.....HT 342

BOLEY, B. A. (editor)
High-temperature structures and materials (BR) ..... I 521

BOLOTIN, V. V. (author)
Dynamic stability of elastic systems (BR) ..... AM 718

BONAMY, S. E.
Development and application of nomographs for an analysis of compression-ignition engines ..... P 148

BONDS
Dynamic bond stress in a composite structure subjected to a sudden pressure rise ..... AM 643

BOOK REVIEWS
Advances in chemical physics, vol. 5 ..... AM 238
Books on material processing ..... I 521
Convective mass transfer ..... AM 238
Differential- und integral-ungleichungen ..... AM 477
Dynamic stability of elastic systems .. AM 718
Elastic liquids ..... AM 477
Elasticity in engineering mechanics ..... AM 958
Experimental stress analysis and motion measurement ..... AM 238
Fundamentals of gas dynamics ..... AM 479
Gas-lubricated bearings ..... AM 718
Grenztragfahigkeits theorie der platten ..... AM 239
Handbook of mathematical functions with formulas, graphs, and mathematical tables ..... AM 239
Heat transfer, thermodynamics, and education. Boelter Anniversary volume ..... AM 477
Hydrodynamics in theory and application ..... AM 958
Introduction to plasma physics ..... AM 479
Kinematic synthesis of linkages ..... AM 477
Linearized analysis of one-dimensional magnetohydrodynamic flows ..... AM 718
Manufacturing properties of materials ..... AM 478
Mechanical design and systems handbook ..... AM 478
Mechanics of incremental deformation ..... AM 957
Orbital dynamics of space vehicles ..... AM 238
Progress in solid mechanics, vol. 4 ... AM 478
Radioisotopic power generation ... AM 958
Structure and property of materials, vol. 1; Thermodynamics of structure, vol. 2 ..... AM 718
Tensors in mechanics and elasticity .. AM 238
Three-dimensional problems of elasticity ..... AM 477

BOOKER, J. F.
Dynamically loaded journal bearings: mobility method of solution ..... B 537
A table of the journal-bearing integral ..... B 533

BOON, G. B.
Fixed tube-sheet heat exchangers (AC) ..... AM 236

BORESI, A.
Buckling of a long fiber-wound cylindrical shell due to stresses caused by windings ..... AM 81

BORESI, A. P. (author)
Elasticity in engineering mechanics (BR) ..... AM 958

BORSOFF, V. N.
Measurement of surface temperatures on gear teeth (D) ..... B 653

BOTTEMA, O.
Acceleration axes in spherical kinematics ..... O 150
Application of dual-number quaternion algebra to the analysis of spatial mechanisms (D) ..... AM 222
On the existence of a cycloidal Burmester theory in planar kinematics (D) ... AM 717

BOUILLON, GRATIEN
On polygonal action in roller chain drives ..... I 243

BOULGER, F. W.
Plastic working of metals ..... I 516

BOUNDARY LAYERS. *See also* FLOW OF FLUIDS
An analytical and experimental study of the plane, incompressible, turbulent free-shear layer with arbitrary velocity ratio and pressure gradient ..... B 421
Artificially produced boundary layer ..... B 1079
Laminar boundary layers and their separation from curved surfaces ..... B 483
A method of solving supersonic laminar boundary-layer separation and its application to wedges and curved surfaces ..... AM 747
A study of linearized approximations to the boundary-layer equations ... AM 757
A theoretical analysis of laminar forced flow and heat transfer about a rotating cone ..... HT 184
Turbulent boundary-layer growth in annular diffusers ..... B 535

BOURDON TUBES. *See* INSTRUMENTS, PRESSURE-MEASURING

BOWIE, O. L.
Rectangular tensile sheet with symmetric edge cracks (AC) ..... AM 237
Single edge crack in rectangular tensile sheet ..... AM 708

BREWER, H. C. (author)
Manufacturing properties of materials (BR) ..... AM 478

BRIDGEMAN, D. C.
A reappraisal of the critical constants for water ..... HT 266

BRIERLY, R. G. (author)
Machine principles and cost control (BR) ..... I 522

BRIGHTON, J. A.
Artificially produced boundary layer ... B 1079

BRILLOUIN, LEON (author)
Tensors in mechanics and elasticity (BR) ..... AM 238

BROCKLEY, C. A.
Thermal wedge lubrication of parallel-surface thrust bearings ..... B 823

BROSENS, PIERRE J.
Solar thermionic generators for space power ..... P 281

BROWN, E. D., JR.
Antiwear and antifriction properties of polyorganosiloxanes and their mixtures with hydrocarbons (D) ..... B 752

BROWN, F. T.
Pressure surges in magnetoviscous flow (D) ..... B 482
Step responses of liquid lines with frequency-dependent effects of viscosity ..... B 504

BROWN, R. D.
Bearing materials and solid lubricants ..... B 795

BROWN, R. H.
Deformation during chip formation ... I 53

BRULL, M. A.
On the solution to transient coupled thermoelastic problems by perturbation techniques ..... AM 389

BUBBLES. *See also* BOILING
Cavitation bubble collapse in viscous, compressible liquids—numerical analysis ..... B 977
On the mechanics of vapor bubble collapse ..... HT 209
A photographic study of the dynamics and damage capabilities of bubbles collapsing near solid boundaries ..... B 511
Some analytical aspects of bubble dynamics ..... B 991

BUCKLING
Axisymmetrical creep buckling of clamped shallow spherical shells ... AM 323
Buckling of a long fiber-wound cylindrical shell due to stresses caused by windings ..... AM 81
Buckling of axially compressed circular cylindrical shells at stresses smaller than the classical critical value .... AM 542
Buckling of circular plate on elastic foundation ..... I 323
Buckling of structural elements subject to surface shears ..... AM 194
Dynamic axisymmetric buckling of shallow conical shells subjected to impulsive loads ..... AM 129
Dynamic plastic buckling of a thin cylindrical shell containing an elastic core ..... AM 803
Effect of boundary conditions on the buckling of conical shells under hydrostatic pressure ..... AM 208
Impact buckling of a thin bar ..... AM 315
Invariant imbedding applied to eigenvalue problems in mechanics ..... AM 47
Low buckling stresses of axially compressed circular cylindrical shells of finite length ..... AM 533
Nonlinear elastic buckling and parametric excitation of a cylinder under axial loads ..... AM 109
Nonlinear model study of the thermal buckling of thin elastic shells ..... AM 71
On the buckling of rings subject to impulsive pressures ..... AM 511
Preferred mode shape in the linear buckling of circular cylindrical shells under axial compression ..... AM 793
A survey of methods of stability analysis of ring-stiffened cylinders under hydrostatic pressure ..... I 385
Torsional buckling of an extended twisted cylindrical rod under one-sided constraint ..... AM 519
Unsymmetric buckling of thin shallow spherical shells (D) ..... AM 466

BULKELEY, P. Z.
Axisymmetric, transverse vibrations of a spinning membrane centrally clamped between collars ..... I 530

BUMP, T. R.
Surface temperatures of infinite plates subjected to sudden environment temperature changes ..... HT 526

BURGREEN, D.
Efficiency of pumping and power generation in ultrafine electrokinetic systems ..... AM 675

BURTON, R. A.
Analysis and test of the screw seal in laminar and turbulent operations (D) ..... B 1091
Bearing materials and solid lubricants .. B 795
Investigation of a partial-arc pad bearing in the superlaminar flow regime (D) .. B 1090
A linearized turbulent lubrication theory (D) ..... B 682
Thermal effects in contact fatigue under oscillatory normal load ..... B 177

BUTTON, M. J.
Experiments on room-temperature Nernst-Ettingshausen refrigerators ... I 21

BÜYÜKTÜR, A. R.
Heat transfer across a linearly accelerated or decelerated laminar boundary layer ..... HT 403

BYERS, N. R.
Fundamental frequency of simply supported rectangular plates with linearly varying thickness .. AM 161, (AC) AM 953

C

CALLAN, P. C.
Basic analysis of pressure-control systems used on large steam turbine-generator units ..... P 389

CAMPBELL, J. S.
Books on material processing (BR) .... I 521

CAPRIZ, G.
Torque produced by misalignment in short lubricated bearings ..... B 847

CARACRISTI, V. Z.
Prevention of residual oil combustion problems by use of low excess air and magnesium additive ..... P 229

CARAMEROS, ALEX
Turbocharged two-stroke-cycle gas engines ..... P 421

CARDEN, A. E.
Thermal fatigue of a nickel-base alloy ..... B 237

CARGILL, R. W.
Bureau of Mines progress in developing the coal-burning gas-turbine power plant ..... P 215

CARLUCCI, N. A.
Flow with losses ..... P 37

CARMAN, C. M.
Plane-strain fracture toughness of high-strength aluminum alloys ..... B 904

CARR, R. B.
Experimental and analytical investigation of the film-conductance-coefficient boundary condition for thermal shock of a conical shell ..... AM 690

CARREKER, R. P., JR.
Dip-forming process (D) ..... HT 12

CARVER, J. R.
Heat transfer to supercritical water in smooth-bore tubes ..... HT 477

CASTELLI, V.
Solution of the stability problem for 360 deg self-acting, gas-lubricated bearings ..... B 199

CAUGHEY, T. K.
Classical normal modes in damped linear dynamic systems ..... AM 583
On the almost sure stability of linear dynamic systems with stochastic coefficients ..... AM 365
Parametric excitation of a nonlinear system ..... AM 899

CAVITATION. *See also* PUMPS, CENTRIFUGAL
Cavitation bubble collapse in viscous, compressible liquids—numerical analysis ..... B 977
Effect of surface roughness on cavitation performance of hydrofoils—Report 1 ..... B 495
An experimental study of accelerated cavitation induced by ultrasonics .... B 967
General formulation of a perturbation theory for unsteady cavity flows .... B 1006
Initial phases of damage to test specimens in a cavitating venturi ..... B 453

CESS, R. D.
Heat transfer, thermodynamics and education. Boelter anniversary volume (BR) ..... AM 477

CHACE, MILTON A.
Solutions to the vector tetrahedron equation ..... I 228

CHAIKIVSKY, M.
Low-excess-air combustion of heavy fuel—high-temperature deposits and corrosion ..... P 379

CHAMBERS, J. T.
A dual-element transducer for measuring high gas-stream temperatures ..... HT 397

CHAMBERS, R. L.
Fuels for advanced power-generation systems....P 125

CHANAUD, R. C.
Significance of the vortex breakdown phenomenon (D)....B 522

CHANDRASEKARAN, H.
Photoelastic analysis of tool-chip interface stresses....I 495

CHANG, R. C. C.
Optimum nonlinear control for step and pulse disturbances....B 95

CHAO, B. T.
End-wall heat transfer in a rarefaction wave tube....HT 349
On the mechanics of vapor bubble collapse....HT 209
Thermal contact resistance in a vacuum environment....HT 243
Unsteady stagnation point heat transfer....HT 221

CHATO, J. C.
Condensation in a variable acceleration field and the condensing thermosyphon....P 355
Pressure distribution and heat transfer for flow over simulated cylindrical parachutes (D)....HT 525

CHEMICAL PHYSICS. *See* PHYSICS

CHEN, T. S.
Film-cooling effectiveness with injection through a porous section....HT 353

CHENEY, J. A.
Deflection of a curved shaft due to torque....AM 215

CHENG, H. S.
A numerical solution for the pressure, temperature, and film thickness between two infinitely long, lubricated rolling and sliding cylinders, under heavy loads....B 695
Stability analysis of gas-lubricated, self-acting, plain, cylindrical, journal bearing of finite length, using Galerkin's method....B 185

CHENG, K. C.
Laminar heat transfer in noncircular ducts by Moiré method....HT 308

CHIDA, I.
Effect of surface roughness on cavitation performance of hydrofoils—Report 1....B 495

CHILDS, G. D.
Boiler flue-gas measurements using a dewpoint meter....P 8

CHIN, J. H.
Anisotropic, multiple scattered radiation from an arbitrary, cylindrical source in an infinite slab....HT 167

CHOU, P. C.
Longitudinal impact on viscoplastic rods—linear stress-strain rate law (D)....AM 226
Upper bounds and Saint-Venant's principle for incompressible potential-flow fields....AM 661

CHOW, C. Y.
Characteristics of herringbone-grooved gas-lubricated journal bearings....B 568

CHU, C. M.
Effect of anisotropic scattering on radiant transport....HT 381

CHU, N. C.
Heat transfer across vertical layers....HT 110

CHURCHILL, S. W.
Anisotropic, multiple scattered radiation from an arbitrary, cylindrical source in an infinite slab....HT 167
Effect of anisotropic scattering on radiant transport....HT 381

CLARK, J. A.
Effect of longitudinal oscillations on free convection from vertical surfaces....AM 183, (AC) AM 717
Interfacial heat and mass transfer in a suddenly pressurized, binary liquid-vapor system....I 413

CLARK, L. G.
An integral method of Liapunov function generation for nonlinear autonomous systems....AM 569
A method for the determination of the domain of stability of second-order nonlinear autonomous systems (AC)....AM 231
On the stability of the oscillations of a simple surge tank....AM 945

CLARK, N. D.
Boiler flue-gas measurements using a dewpoint meter....P 8

CLAUSING, A. M.
Thermal contact resistance in a vacuum environment....HT 243

CLAYTON, B. R.
Laminar boundary layers and their separation from curved surfaces....B 483

CLINEDINST, W. O.
Strength of threaded joints for steel pipe....I 125

CLOUD, R. L.
Minimum weight design of a radial nozzle in a spherical shell....AM 448

COBALT ALLOYS
High-temperature, cobalt-tungsten alloys for aerospace applications....I 9

COBB, EDWIN B.
Philosophy of power test codes and their development (D)....P 112

COFFIN, L. F., JR.
Effect of quench aging and cyclic-strain aging on low-carbon steel....B 351

COGAN, R. M.
Hydrodynamic forming....I 105

COHAN, L. J.
Elimination of destructive, self-excited vibrations in large, gas and oil-fired utility units....P 223

COHEN, H.
Some remarks on spherical shells....AM 121

COHEN, M. J.
Analysis of lift augmentation of vertical solid jets in proximity of the ground....AM 263

COHEN, PAUL
Hydrogen evolution and steam dissociation in steam generators (D)....P 411

COLAO, ANGELO
A bonded grid polariscope for photoviscoelasticity....AM 702

COLLINS, J. A.
Fretting-fatigue damage-factor determination....I 298

COMBUSTION
Low-excess-air combustion of heavy fuel—high-temperature deposits and corrosion....P 379
SO_3 formation in H_2S flames....P 374

COMPOSITE MATERIALS
Effect of shear distortion in sandwich cylinders subjected to nonuniform pressure....AM 694

COMPRESSION-IGNITION ENGINES. *See* ENGINES, DIESEL

COMPRESSOR ENGINES. *See* ENGINES, GAS

COMPRESSORS
Compressor surge in gas turbines and blast-furnace compressor installations....P 193
Slip factor of a radial-bladed centrifugal compressor....P 181

COMPUTERS. *See* ELECTRIC ANALOGY

CONDENSATION
Condensation in a variable acceleration field and the condensing thermosyphon....P 355
Condensation of vapor on a vertical plate with a transverse electrostatic field....HT 197
Laminar film condensation on a porous horizontal tube with uniform suction velocity....HT 95
Mechanism of dropwise condensation....HT 275

CONDENSERS. *See* HEAT-EXCHANGE EQUIPMENT

CONES
A theoretical analysis of laminar forced flow and heat transfer about a rotating cone....HT 184

CONSTANTINESCU, V. N.
A linearized turbulent lubrication theory....B 675
On hydrodynamic instability of gas-lubricated journal bearings....B 579

COSTANTINO, C. J.
Strength of thin-walled cylinders subjected to dynamic internal pressures....AM 104

CONTRACTOR, D. N.
Reflection of waterhammer pressure waves from minor losses....B 445

CONTROL. *See* AUTOMATIC CONTROL

CONVECTION
Laminar free convection from a nonisothermal cylinder....HT 237

CONWAY, H. D.
Some remarks on the bending of sector plates....AM 214
Vibration frequencies of tapered bars and circular plates (AC)....AM 235
Vibration frequencies of truncated-cone and wedge beams....AM 932

COOK, R. D.
An analysis of axially symmetric coupled tube sheets (AC)....AM 475

COOLING SYSTEMS
Film-cooling effectiveness with injection through a porous section....HT 353
Film cooling of an adiabatic flat plate in zero pressure gradient in the presence of a hot mainstream and cold tangential secondary injection....HT 409

COOMBS, J. W.
Creep and rupture behavior of low-alloy steels in high-pressure hydrogen environment....B 313

COOPER, G. D.
Low-cycle fatigue life of turbine generator retaining rings determined by stress-cycling tests....B 245

COOPER, S.
Gas-lubricated stepped thrust bearing—a comprehensive study....B 213

CORLISS, W. R. (author)
Radioisotopic power generation (BR)....AM 958

CORROSION. *See also* BOILER CORROSION
Corrosion of feedwater-heater tubing alloys in peaking service....P 324
Electron-microprobe study of scale formations on Cr-Mo superheater tubing after long-time exposure to 2000 psi steam of 1100 F and 1200 F....P 205
Fretting corrosion caused by vibration with rolling bearings stationary....B 713
A progress report—fundamentals of thermochemical corrosion reactions....P 116

COSTELLO, C. P.
Photographic study of nucleate pool boiling on a horizontal surface (D)....HT 27

COTTERELL, B.
An interpretation of the mechanism of crank growth by fatigue....B 230

COULL, A.
A direct-stress analysis of orthotropic cantilever plates...AM 67, (AC) AM 715

CRACK PROPAGATION
A comparison of the initiation with the rapid propagation of a crack in a mild-steel plate....B 257
Single edge crack in rectangular tensile sheet....AM 708

CRACKED BODIES. *See* STRESSES AND STRAINS

CRACKS. *See* CRACK PROPAGATION; STRESSES AND STRAINS

CRAIG, ANDREW
Choice of time for zeroing a disturbance in a minimum-fuel-consumption control problem....B 29
Investigation of optimal control with a minimum-fuel-consumption criterion for a fourth-order plant with two control inputs; synthesis of an efficient suboptimal control....B 39

CRANCH, E. T.
Dynamic stability of elastic systems (BR)....AM 718

CREEP OF MATERIALS
An approximate analysis of deflections of beams in creep bending....B 899
Creep and rupture behavior of low-alloy steels in high-pressure hydrogen environment....B 313
Creep-rupture behavior of unnotched and notched nickel-base alloys in air and in vacuum....B 344
Creep rupture of rotating disks and thin shells of revolution....AM 607
Primary creep design of thick tubes....B 379
Steady-state biaxial creep....AM 37, (D) AM 712
Uniaxial creep-rupture behavior of low-alloy steel under variable loading conditions....B 374

CROSSLEY, H. E.
Low-excess-air combustion of heavy fuel—high-temperature deposits and corrosion (D)....P 386

CRUZ, J. B., JR.
Parameter variation problem in state feedback control systems....B 120

CUMMING, J. D.
A new analysis of the forces in orthogonal metal cutting....I 480

CURRIE, I. G.
Thermal wedge lubrication of parallel-surface thrust bearings....B 823

CYLINDERS
Correlation of fatigue tests of thick-wall cylinders subjected to repeated internal pressure....B 405
Effect of shear distortion in sandwich cylinders subjected to nonuniform pressure....AM 694
Nonlinear elastic buckling and parametric excitation of a cylinder under axial loads....AM 109
Strength of thin-walled cylinders subjected to dynamic internal pressures....AM 114
A survey of methods of stability analysis of ring-stiffened cylinders under hydrostatic pressure....I 385
Thermal stresses in anisotropic hollow cylinders....B 391

D

DALL, H. E.
An investigation into the performance of two ISA metering nozzles of finite and zero area ratio (D).....B 529

DAMPING
Shaft whirl induced by rotor internal damping (D).....AM 233

DANCZAK, EDWARD S.
Continuity of cylindrical shells subjected to the uniformly distributed longitudinal surface loads (D)....I 123

DANIEL, I. M.
Experimental methods for dynamic stress analysis in viscoelastic materials..AM 598

DANIEL, S. G.
Action of neutral organic phosphates as EP additives.....B 761

DANKE, J. P.
On the existence of a cycloidal Burmester theory in planar kinematics (D)..AM 717

DAVENPORT, M. E.
The effect of transverse temperature gradients on the heat transfer and friction for laminar flow of gases...HT 191

DEANE, W. J.
Elimination of destructive, self-excited vibrations in large, gas and oil-fired utility units.....P 223

DEFLECTION. *See* DEFORMATION

DEFORMATION. *See also* PRESSURE VESSELS
Bending due to ring loading of a cylindrical shell with an elastic core....AM 99
Deflection of a curved shaft due to torque.....AM 215
Effect of finite pressure-pulse duration on the uniform deformation of a long cylindrical shell.....AM 331
Finite deformation of a pressurized membrane strip.....AM 451
Large deformation of a rigid, ideally plastic cantilever beam.....AM 295
A linearized large-deformation analysis for rotationally symmetric membranes.....AM 444
On the bending problem of prismatical beam by terminal transverse load .....AM 210
Plastic deformation of impulsively loaded straight clamped beams.....AM 7
Some remarks on spherical shells....AM 121
Some remarks on the bending of sector plates.....AM 214

DELEY, G. W.
Optimal bounded control of linear sampled-data systems with quadratic loss.....B 135

DEMING, N. R.
ASME research on high-pressure, high-temperature steam and water flow measurement: report of Subcommittee 7 of the ASME Fluid Meter Research Committee (D).....B 1041

DENAVIT, JACQUES
Acceleration axes in spherical kinematics (D).....I 153
Analysis of errors in the double Hooke joint.....I 251
Application of dual-number quaternion algebra to the analysis of spatial mechanisms (D).....AM 222
An iterative method for the displacement analysis of spatial mechanisms (AC) .....AM 221
Velocity, acceleration, and static-force analyses of spatial linkages.....AM 903

DENAVIT, J. (author)
Kinematic synthesis of linkages (BR) .....AM 477

DESILVA, C. N.
Some remarks on spherical shells....AM 121

DEUTSCH, RALPH (author)
Orbital dynamics of space vehicles (BR).....AM 238

DEVENPECK, M. L.
Strip-drawing experiments with a sigmoidal die profile.....I 425

DHANAK, A. M.
Heat transfer in magnetohydrodynamic flow in an entrance section.....HT 231
Momentum transfer in thermally asymmetric turbulent jets.....HT 429

DIBOLL, W. B., JR.
Role of stress concentration in the fatigue of Delrin.....I 319

DIES. *See also* METAL FORMING
Pressure peaks at the ends of plane-strain rigid die contacts (elastic).....AM 462

DIFFUSERS
Turbulent boundary-layer growth in annular diffusers.....B 535

DILL, E. H.
Elastic liquids (BR).....AM 477

DILLON, O. W., JR.
Thermoelasticity when the material coupling parameter equals unity...AM 378

DIPFORMING. *See* METAL FORMING

DISKS
Axisymmetric, transverse vibrations of a spinning membrane centrally clamped between collars.....I 530
Free vibration of initially stressed circular disks.....I 258

DISPLACEMENTS
Displacement bound principle for inelastic continua subjected to certain classes of dynamic loading.....AM 1

DITARANTO, R. A.
Theory of vibratory bending for elastic and viscoelastic layered finite-length beams.....AM 881

DOBY, RAYMOND
On detached shocks for blunt bodies at small angles of attack.....AM 271

DODGE, F. T.
Magnetohydrodynamic squeeze-film bearings.....B 805

DODGE, L. A.
ASME research on high-pressure, high-temperature steam and water flow measurement: report of Subcommittee 7 of the ASME Fluid Meter Research Committee (D).....B 1041

DOHRMANN, R. J.
Experimental determination of the elastic behavior of orthotropic plates (D)...I 317

DORTON, G. A.
Effects of operational parameters on a large "V" angle compressor engine..P 157

DOSHI, K. D.
Wave propagation in an elastic non-homogeneous bar of finite length..AM 135

DOVE, R. C. (author)
Experimental stress analysis and motion measurement (BR).....AM 238

DOWSON, D.
Lubrication phenomena in spur gears: capacity, film thickness variation, and efficiency (D).....B 663
A numerical solution for the pressure, temperature, and film thickness between two infinitely long, lubricated rolling and sliding cylinders, under heavy loads (D).....B 705

DRAKE, R. L.
Upper bounds and Saint-Venant's principle for incompressible potential-flow fields.....AM 661

DRESSLER, ROBERT
Elastic shell-theory formulation for Bourdon tubes.....B 1072

DRILL STRINGS. *See* PETROLEUM-WELL EQUIPMENT

DRILLING. *See* METAL CUTTING

DRIVES
Adjustment of hydro-governor characteristics using separate drive for the speed-sensing element.....P 13

DROPKIN, D.
Heat transfer by natural convection in liquids confined by two parallel plates which are inclined at various angles with respect to the horizontal.....HT 77
Measured temperature profiles within the superheated boundary layer above a horizontal surface in saturated nucleate pool boiling of water.....HT 333

DRUCKER, D. C.
An experimental study of plane plastic straining of notched bars.....AM 493
Grenztragfahigkeits theorie der platten (BR).....AM 239
Mechanics of incremental deformation (BR).....AM 957

DRUTOWSKI, R. C.
The role of microslip for freely rolling bodies.....B 724

D'SOUZA, A. FRANK
Hydraulic speed governor with major governor problems solved (D).....B 8

DUBIL, J. F.
Vibration frequencies of tapered bars and circular plates (AC).....AM 235
Vibration frequencies of truncated-cone and wedge beams.....AM 932

DUCTS
Frictional pressure drop in triangular ducts.....HT 427
Laminar heat transfer and pressure drop in isosceles triangular, right triangular, and circular sector ducts.....HT 426
Laminar heat transfer in noncircular ducts by Moiré method.....HT 308
Slip flow in rectangular and annular ducts.....B 1018

DUFFY, A. R.
Fracture resistance in line pipe.....I 265

DUFFY, E. J.
Water analyses and their functions in selecting condenser tube alloys.....P 329

DUNDURS, J.
Transmission of force between two semi-infinite solids.....AM 671

DURELLI, A. J.
Photoelastic analysis of plates subjected to restrained shrinkage.....AM 504

DVORAK, F. A.
Thermal wedge lubrication of parallel surface thrust bearings.....B 823

DWYER, ORRINGTON E.
Heat transfer to mercury flowing in-line through a rod bundle.....HT 312

DYE, D. E.
Performance of small-sized, critical flow-meter assembly.....B 1025

DYNAMIC LOADING
Displacement bound principle for inelastic continua subjected to certain classes of dynamic loading.....AM 1

E

EBERLE, F.
Electron-microprobe study of scale formations on Cr-Mo superheater tubing after long-time exposure to 2000 psi steam of 1100 F and 1200 F.....P 205

EBERT, L. J.
A behavioral model for the fracture of surface-hardened components.....B 871

EBERT, W. A.
Experiments on the diffusion thermo effect in a binary boundary layer with injection of various gases.....HT 321
Slip flow in rectangular and annular ducts.....B 1018

ECKERT, E. R. G.
Effects of roughness of metal surfaces on angular distribution of monochromatic reflected radiation.....HT 85
Heat transfer to mercury in laminar film through a tube with constant heat flux.....HT 419
Integral analysis of the flow of a heat-generating fluid in the entrance region of a parallel-plate channel.....HT 313
Laminar pressure drop associated with the continuum entrance region and for slip flow in a circular tube.....AM 765

EDLIN, F. E.
Review of recent Air Force research on selective solar absorbers (D).....P 280

EDWARDS, D. K.
Radiation exchange in an enclosure with directional wall properties.....HT 388

EFTIS, J.
A comparison of the initiation with the rapid propagation of a crack in a mild steel plate.....B 257

EGGENBERGER, M. A.
Basic analysis of pressure-control systems used on large steam turbine-generator units.....P 389

EHRICH, F. F.
Protecting turbomachinery from self-excited rotor whirl (D).....P 343
Shaft whirl induced by rotor internal damping (AC).....AM 233

EIBER, R. J.
Fracture resistance in line pipe.....I 265

EKTERMANIS, J. A.
Improving ultrasonic machining rates—some feasibility studies.....I 39

ELASTICITY. *See also* STRESSES AND STRAINS
Application of the principle of stationary potential energy to some problems in finite elasticity.....AM 656
Asymmetric mixed boundary-value problems of the elastic half-space.....AM 411
Complementary energy theorem in finite elasticity.....AM 826
Dynamic stability of elastic systems (BR).....AM 718
The elastic moduli of fiber-reinforced materials (errata).....AM 219
Elasticity in engineering mechanics (BR).....AM 958
Experimental determination of the elastic behavior of orthotropic plates.....I 315
Mechanics of incremental deformation (BR).....AM 957
A note on the instability of a rotating string.....AM 939
On the parametrization of the elastic moduli of two-phase materials..... AM 211, (D) AM 953
Physical model of a 3-constant isotropic elastic material.....AM 837
Plane problems of cracks in dissimilar media.....AM 418
Tensors in mechanics and elasticity (BR).....AM 238
Three-dimensional problems of elasticity (BR).....AM 477
Transient response of a rigid spherical inclusion in an elastic medium..AM 637

ELASTOHYDRODYNAMICS. *See* LUBRICATION

ELASTOMERS
On the propagation of finite disturbances in bars of rubberlike materials....I 523

ELECTRIC ANALOGY
Accuracy of one method for mechanism simulation by electronic analog computer....I 235

ELECTROKINETIC SYSTEMS
Efficiency of pumping and power generation in ultrafine electrokinetic systems....AM 675

ELROD, H. G.
Solution of the stability problem for 360 deg self-acting, gas-lubricated bearings....B 199
Theory of the infinitely wide, perfectly flexible, self-acting foil bearing....B 831

EMERY, A.
Heat transfer across vertical layers..HT 110

ENERGY CONVERSION
Radioisotopic power generation (BR)....AM 958

ENERGY STORAGE
Energy storage in metals at high pressures....B 385

ENGEL, F. V. A.
An investigation into the performance of two ISA metering nozzles of finite and zero area ratio (D)....B 530

ENGINES
Piston-boss and wrist-pin design....P 412

ENGINES, DIESEL
Development and application of nomographs for an analysis of compression-ignition engines....P 148

ENGINES, GAS
Advanced lubricating oil reduces gas-engine maintenance costs....P 169
Combustibles versus nitrogen fixation in gas-engine operation and lubrication....P 175
Determination and significance of gaseous-fuel octane numbers....P 166
Effects of operation parameters on a large "V" angle compressor engine....P 157
Turbocharged two-stroke-cycle gas engines....P 421

ENGLAND, A. H.
A crack between dissimilar media....AM 400

ENIS, H. S.
"Painting" of polystyrene beads for use in flow visualization....B 1080

ENSIGN, C. R.
Further investigation of a relation for cumulative fatigue damage in bending....I 25

ERDOGAN, F.
Stress distribution in bonded dissimilar materials containing circular or ring-shaped cavities....AM 829
Stress distribution in bonded dissimilar materials with cracks....AM 403

ESCH, ROBIN
Analysis of shells of revolution subjected to symmetrical and nonsymmetric loads (D)....AM 467

ESHEL, A.
Theory of the infinitely wide, perfectly flexible, self-acting foil bearing....B 831

ESHGHY, SIAVASH
Effect of longitudinal oscillations on free convection from vertical surfaces....AM 183, (AC) AM 717

ESS, J. O.
Generation of precise reference pressures up to 15,750 psi....B 1063

EUBANKS, R. A.
Stress interference in three-dimensional torsion....AM 21

EVANS, H. J.
Density effect and Reynolds number effect on gas-turbine flowmeters....B 1043

EVANS, L. B.
Effect of anisotropic scattering on radiant transport....HT 381

EVANS, R. B.
A logical error in the single axiom for classical thermodynamics....AM 703

EXTRUDERS
Pressures and flow rates in extruders with axially variable geometry....AM 277

F

FAMILI, J.
On the vibration and stability of finitely deformed shallow spherical shells.AM 116

FAN, LIANG-TSENG
Optimization of step rockets by the discrete maximum principle....I 419

FAND, R. M.
The influence of acoustic vibration on heat transfer by natural convection from a horizontal cylinder to water....HT 309

FARMER, D. A.
An analysis of the abrasive machining of plane surfaces....I 349
Grinding....I 523

FASHBAUGH, R. H.
Resonance in liquid rocket engine systems....B 1011

FATIGUE OF MATERIALS. *See also* METAL FATIGUE
Fretting-fatigue damage-factor determination....I 298
Role of stress concentration in the fatigue of Delrin....I 319
A set of fatigue failure criteria....B 333

FAUSKE, HANS K.
Maximum flow rate of a single-component, two-phase mixture (D)...HT 141

FAVRE, A. J.
Review on space-time correlations in turbulent fluids....AM 241

FEIN, R. S.
Critical temperature of oil with point and line contact machines (D)....B 759
Mechanism of boundary lubrication and the edge effect (D)....B 739

FELBECK, D. K.
Subultimate prestrain and aging in mild steel....B 319

FIBER-REINFORCED MATERIALS
Ablation of reinforced plastic for heat protection....AM 177, (D) AM 951
Buckling of a long fiber-wound cylindrical shell due to stresses caused by windings....AM 81
The elastic moduli of fiber-reinforced materials (errata)....AM 219
Filament winding (BR)....I 522

FIELD, F. A.
Cracks under longitudinal shear....AM 197

FINDLAY, J. A.
Average volumetric concentration in two-phase flow systems....HT 453

FINDLEY, W. N.
An experimental study of plane plastic straining of notched bars....AM 493

FINKELSTEIN, A. R.
Myklestad's method for predicting whirl velocity as a function of rotational velocity for flexible multimass rotor systems....AM 589

FINNIE, IAIN
Manufacturing properties of materials (BR)....AM 478

FIRTH, R. D.
Rigid-plastic beams under uniformly distributed impulses....AM 481

FISCHLER, S.
Experiments on room-temperature Nernst-Ettingshausen refrigerators..I 21

FLEMING, J. F.
Buckling of structural elements subject to surface shears....AM 194

FLORENCE, A. L.
Rigid-plastic beams under uniformly distributed impulses....AM 481
Traveling force on a Timoshenko beam....AM 351

FLORSCHUETZ, L. W.
On the mechanics of vapor-bubble collapse....HT 209

FLOW MEASUREMENT
ASME research on high-pressure, high-temperature steam and water flow measurement: report of Subcommittee 7 of the ASME Fluid Meters Research Committee....B 1029

FLOW OF FLUIDS. *See also* PIPELINES, WAVE MECHANICS
An analytical and experimental study of the plane, incompressible, turbulent free-shear layer with arbitrary velocity ratio and pressure gradient....B 421
Effect of longitudinal oscillations on free convection from vertical surfaces (D)....AM 717
Effect of radial momentum flux on flow in the entrance of a porous tube....AM 195
The effect of transverse temperature gradients on the heat transfer and friction for laminar flow of gases...HT 191
Experimental study of flow through moving orifices....B 1082
Flow with losses....P 37
Free convective flow of Bingham plastic between two vertical plates....HT 319
General formulation of a perturbation theory for unsteady cavity flows....B 1006
A generalized Taylor hypothesis with application for high Reynolds number turbulent shear flows....AM 735
Generation of secondary vorticity in an incompressible fluid (D)....AM 230
Gravity flow of frictional-cohesive solids — convergence to radial stress fields....AM 205
Initial boundary-layer effects on laminar flows with wall slot injection....HT 157
Laminar pipe flow with mass-transfer cooling....HT 252

FLOW OF FLUIDS (*continued*)
Laminar pressure drop associated with the continuum entrance region and for slip flow in a circular tube....AM 765
Laminar radial flow between parallel plates (D)....AM 715
Maximum flow rate of a single-component, two-phase mixture....HT 134
Nonequilibrium flow of dilute reacting gases....AM 169
On constant-property turbulent boundary layers with variable temperature or heat flow at the wall....HT 151
On the bending of streamlines toward vortex lines....AM 203
Prediction of two-phase critical flow rate....HT 53
Review on space-time correlations in turbulent fluids....AM 241
Slip flow in rectangular and annular ducts....B 1018
Supercavitating cascade flow analysis (errata)....B 1078
Three-dimensional theory of incompressible and inviscid flow through mixed-flow turbomachines....P 361
Two-dimensional turbulent jet mixing....AM 198
Upper bounds and Saint-Venant's principle for incompressible potential-flow fields....AM 661

FLOW OF SOLIDS
Stress and velocity fields in the gravity flow of bulk solids (D)....AM 472

FLOW VISUALIZATION
"Painting" of polystyrene beads for use in flow visualization....B 1080
Tuft probe errors....B 265
Use of hydrogen bubbles for quantitative determination of time-dependent velocity fields in low-speed water flows....B 429

FLOWMETERS
Density effect and Reynolds number effect on gas-turbine flowmeters....B 1043
Performance of small-sized, critical flowmeter assembly....B 1025

FLÜGGE-LOTZ, I.
Choice of time for zeroing a disturbance in a minimum-fuel-consumption control problem....B 29
Investigation of optimal control with a minimum-fuel-consumption criterion for a fourth-order plant with two control inputs; synthesis of an efficient suboptimal control....B 36

FLUID AMPLIFIERS
Some design techniques for fluid-jet amplifiers....B 67

FLUID MECHANICS
Fluid mechanics of zero-G propellant transfer in spacecraft propulsion systems....I 1
Pressure transients in viscous-fluid systems....B 1089

FORRESTAL, M. J.
An approximate solution for the circumferential stresses in a stretched plate caused by a suddenly punched hole....AM 949
Natural frequency of a ring subjected to external pressure (D)....AM 956
Response of a submerged cylindrical shell to an axially propagating step wave....AM 788

FORSTROM, R. J.
Experiments on the diffusion thermo effect in a binary boundary layer with injection of various gases....HT 321

FOSTER, T. G.
Fretting-fatigue damage-factor determination (D)....I 302

FOUNDRY PRACTICE
Foundry core and mould making by the carbon dioxide process (BR)....I 522

FOWLER, H. S.
Slip factor of a radial-bladed centrifugal compressor (D)....P 189

FOX, J.
Laminar free convection from a non-isothermal cylinder (D)....HT 241

FOX, W. G.
Density effect and Reynolds number effect on gas-turbine flowmeters (D)....B 1051
Driving torques in a theoretical model of a turbine meter....B 413

FRALICH, ROBERT W.
Stress and shape analysis of a paraglider wing....AM 771

FRANKEL, N. A.
Laminar film condensation on a porous horizontal tube with uniform suction velocity....HT 95

FRANKLIN, G. F.
Optimal bounded control of linear sampled-data systems with quadratic loss....B 135

FRECHE, J. C.
Further investigation of a relation for cumulative fatigue damage in bending ..... I 25
High-temperature, cobalt-tungsten alloys for aerospace applications ..... I 9

FRETTING
Fretting-fatigue damage-factor determination ..... I 298

FRETTING CORROSION. *See* CORROSION

FREUDENSTEIN, F.
Application of dual-number quaternion algebra to the analysis of spatial mechanisms (AC) ..... AM 223
Higher path-curvature analysis in plane kinematics ..... I 184
Kinematic synthesis of linkages (BR) ..... AM 477

FREUDENTHAL, A. M. (editor)
High-temperature structures and materials (BR) ..... I 521

FRICTION. *See* WEAR

FRIED, E.
Thermal contact resistance in a vacuum environment (D) ..... HT 250

FROST, M. A., III
Analysis of the motion of deep-water drill strings—part 1: forced lateral motion ..... I 137
Analysis of the motion of deep-water drill strings—part 2: forced rolling motion ..... I 145

FUCHS, H. O.
A set of fatigue failure criteria ..... B 333

FUELS
Determination and significance of gaseous-fuel octane numbers ..... P 166
Fuels for advanced power-generation systems ..... P 125

FULTON, R. E.
Dynamic axisymmetric buckling of shallow conical shells subjected to impulsive loads ..... AM 129

FUREY, M. J.
Action of neutral organic phosphates as EP additives (D) ..... B 767

FURUIKE, T.
Effect of shear distortion in sandwich cylinders subjected to nonuniform pressure ..... AM 694

G

GAERTNER, R. F.
Photographic study of nucleate pool boiling on a horizontal surface ..... HT 17

GALLETTI-MANACORDA, L.
Torque produced by misalignment in short lubricated bearings ..... B 847

GALLOPOULOS, N. E.
Action of neutral organic phosphates as EP additives (D) ..... B 768

GAMBILL, W. R.
Subcooled swirl-flow boiling and burnout with electrically heated twisted tapes and zero wall flux ..... HT 342

GARDNER, K. A.
Fixed tube-sheet heat exchangers (D) ..... AM 235

GASES
Fundamentals of gas dynamics (BR) ..... AM 479

GAS-LIQUID MIXTURES
Average volumetric concentration in two-phase flow systems ..... HT 453
Interfacial heat and mass transfer in a suddenly pressurized, binary liquid-vapor system ..... I 413

GAS TURBINES. *See also* POWER
Compressor surge in gas turbines and blast-furnace compressor installations ..... P 193
Heat transfer from a shrouded rotating disk to a single fluid stream ..... HT 485
Investigations of forced-convection liquid-cooled gas-turbine blades ..... P 57
Typical performance characteristics of gas-turbine radial compressors (erratum) ..... P 123

GATCOMBE, E. K.
Lubrication phenomena in spur gears: capacity, film thickness variation, and efficiency (D) ..... B 663

GEARS
Lubrication phenomena in spur gears: capacity, film thickness variation, and efficiency ..... B 655
Measurement of surface temperatures on gear teeth ..... B 641

GEORGIAN, J. C.
Vibration frequencies of tapered bars and circular plates (D) ..... AM 234

GIBBONS, W. G.
Subultimate prestrain and aging in mild steel ..... B 319

GIEDT, W. H.
A dual-element transducer for measuring high gas-stream temperatures ..... HT 397

GILL, W. H.
Laminar flow with mass-transfer cooling (D) ..... HT 258

GILLE, J. P.
Fluid mechanics of zero-G propellant transfer in spacecraft propulsion systems ..... I 1

GLASER, J.
Gas-lubricated stepped thrust bearing—a comprehensive study ..... B 213

GLEESON, W. S.
Development of a special high-efficiency turbocharger compressor for application on straight turbocharged two-cycle engines (D) ..... P 104

GLUCK, D. F.
Fluid mechanics of zero-G propellant transfer in spacecraft propulsion systems ..... I 1

GODEL, J. M.
Charteristics of herringbone-grooved gas-lubricated journal bearings (D) ..... B 576

GOLDBERG, M. A.
A linearized large-deformation analysis for rotationally symmetric membranes ..... AM 444

GOLDHOFF, R. M.
Uniaxial creep-rupture behavior of low-alloy steel under variable loading conditions ..... B 374

GOLDSTEIN, R. J.
Film-cooling effectiveness with injection through a porous section ..... HT 353

GOODELL, J. H.
Boiler feed-pump drives ..... P 237

GOODIER, J. N.
Pressure peaks at the ends of plane-strain rigid die contacts (elastic) ..... AM 462

GOPALACHARYULU, S.
Large deflections of clamped plate by modified Fourier series ..... AM 943

GOREE, J. G.
Approximate determination of contact stresses in an infinite plate containing a smooth rigid elliptic insert ..... AM 437

GOTTENBERG, W. G.
Apparatus for measuring thrust produced on rotating body immersed in a liquid (D) ..... AM 952

GOVERNORS
Adjustment of hydro-governor characteristics using separate drive for the speed-sensing element ..... P 13
Hydraulic speed governor with major governor problems solved ..... B 1

GRAHAM, R. D.
Analysis of the motion of deep-water drill strings—part 1: forced lateral motion ..... I 137

GRANULAR MATERIALS
A rolling theory for granular solids ..... AM 842

GRASSMAN, N. S. (editor)
Gas-lubricated bearings (BR) ..... AM 718

GRATCH, SERGE
Transient response in a viscoelastic material with temperature-dependent properties and thermomechanical coupling ..... AM 620

GRAY, A. H., JR.
On the almost sure stability of linear dynamic systems with stochastic coefficients ..... AM 365

GREENBERG, H.
An engineering basis for establishing radiographic acceptance standards for porosity in steel weldments ..... B 887

GREENE, EDWARD F.
Advances in chemical physics, vol. 5 (BR) ..... AM 238

GREGORY, R. K.
Steady-state biaxial creep ..... AM 37, (AC) AM 714

GREIF, RALPH
Measured temperature profiles within the superheated boundary layer above a horizontal surface in saturated nucleate pool boiling of water (D) ..... HT 340

GREIF, ROBERT
Effect of a stringer on the stress in a cracked sheet ..... AM 59

GRIFFIN, D. S.
Stresses and deflections of thick, curved plates ..... I 303

GRIFFITH, P.
Mechanism of dropwise condensation ..... HT 275

GRINDING AND GRINDING WHEELS
An analysis of the abrasive machining of plane surfaces ..... I 349
Grinding ..... I 518
1963 review of metal-processing literature ..... I 85
Significant factors in vertical-spindle abrasive-machining tests ..... I 365

GROSH, R. J.
Radiative heat transfer in absorbing, emitting, and scattering media ..... HT 161

GROSS, W. A.
Gas-lubricated stepped thrust bearing—a comprehensive study ..... B 213

GROUND-EFFECT MACHINES
On a simplified method for solving impulsively loaded structures of rate-sensitive materials ..... AM 489
Analysis of lift augmentation of vertical solid jets in proximity of the ground ..... AM 263

GROVE, C. S. (author)
Filament winding (BR) ..... I 522

GUERNSEY, ROSCOE, JR.
Experimental stress analysis and motion measurement (BR) ..... AM 238

GUMP, C. B. (editor)
Die design handbook (BR) ..... I 522

GUNDERSON, ROY M. (author)
Linearized analysis of one-dimensional magnetohydrodynamic flows (BR) ..... AM 718

GUNTER, E. J., JR.
Dynamics of synchronous-processing turborotors with particular reference to balancing. Part 1—theoretical foundations (D) ..... AM 223

GYRODYNAMICS. *See* KINEMATICS

H

HAIN, KURT
A four-bar linkage adjustable for variable straight-line motions (D) ..... I 289

HAJI-SHEIKH, A.
Generalized variational method for calculating radiant interchange between surfaces ..... HT 103
Inverse problem in transient heat conduction (AC) ..... AM 473
Laminar heat transfer and pressure drop in isosceles triangular, right triangular, and circular sector ducts ..... HT 426

HALAUNBRENNER, J.
On the oscillation at the final stages of rolling of a hard sphere on an elastic base ..... B 708

HALL, ALLEN S., JR.
A four-bar linkage adjustable for variable straight-line motions (D) ..... I 289
An iterative method for the displacement analysis of spatial mechanisms (D) ..... AM 220

HALL, C. W.
Momentum transfer in thermally asymmetric turbulent jets ..... HT 429

HALL, G. W.
An investigation into the performance of two ISA metering nozzles of finite and zero area ratio (D) ..... B 530

HALLE, H.
Exact solution of elementary transient heat-conduction problem involving temperature-dependent properties ..... HT 420

HAM, I.
Performance of tungsten carbide, titanium carbide, and oxide tools in finish turning of C-30 gray iron ..... I 344

HAMMITT, F. G.
Cavitation bubble collapse in viscous, compressible liquids—numerical analysis ..... B 977
Initial phases of damage to test specimens in a cavitating venturi ..... B 453
Tip-clearance effects in centrifugal pumps (D) ..... B 939

HAN, L. S.
Heat and mass transfer to a cryosurface in free convection ..... HT 499
On the free vibration of a beam on a nonlinear elastic foundation ..... AM 445

HANCOCK, J. O.
Buckling of circular plate on elastic foundation ..... I 323

HANNON, B. M.
Correlation of fatigue tests of thick-wall cylinders subjected to repeated internal pressure ..... B 405

HANSEN, A. G.
Generation of secondary vorticity in an incompressible fluid (D) ..... AM 230

HANSEN, W. A.
Fuel-ash corrosion and its effect on boiler design ..... P 210

HANZALEK, F. J.
Boiler feed pump drives (D) ..... P 245

HARDING, B. L.
Hesitation ..... I 205

HARDING, C. F.
Solution to Euler's gyrodynamics—1 (AC) ..... AM 229

HARMAN, T. C.
Experiments on room-temperature Nernst-Ettingshausen refrigerators ..... I 21

HARRISBERGER, L.
A number synthesis survey of three-dimensional mechanisms....I 213
Analysis of approximate four-bar straight-line mechanisms (D)....I 296

HARTENBERG, R. S.
Analysis of errors in the double Hooke joint....I 251
Application of dual-number quaternion algebra to the analysis of spatial mechanisms (D)....AM 222
An iterative method for the displacement analysis of spatial mechanisms (AC)....AM 221
A number synthesis survey of three-dimensional mechanisms (D)....I 218
Velocity, acceleration, and static-force analyses of spatial linkages....AM 903

HARTENBURG, R. S. (author)
Kinematic synthesis of linkages (BR)....AM 477

HARTNETT, J. P.
Heat transfer to a nonisothermal rotating disk with a turbulent boundary layer....HT 362
Pressure distribution and heat transfer for flow over simulated cylindrical parachutes....HT 521

HARTRANFT, R. J.
Couple-stress effects on stress concentration around a cylindrical inclusion in a field of uniaxial tension (D)....AM 954
Effect of couple-stresses on the stress concentration of a circular inclusion....AM 429

HARTUNG, H. A.
Critical temperature of oil with point and line-contact machines (D)....B 759
Rolling-contact lubrication—the application of elastohydrodynamic theory (D)....B 176

HARTUNG, R. F.
Symmetric loading of orthotropic shells of revolution....AM 337

HARVEY, D. S. (author)
Radioisotopic power generation (BR)....AM 958

HARVEY, P. D. (editor)
Die design handbook (BR)....I 522

HASHIN, ZVI
The elastic moduli of fiber-reinforced materials (errata)....AM 219
On the parametrization of the elastic moduli of two-phase materials (D)....AM 953
Viscoelastic behavior of heterogeneous media....AM 630

HASINGER, S. H.
Analytical and experimental investigation of multiple-disk turbine (D)....P 36

HATFIELD, H. F.
Temperature distribution in the Susquehanna River at Brunner Island Steam Electric Station....P 50

HAUGHTON, G. B., JR.
An investigation into the performance of two ISA metering nozzles of finite and zero area ratio (D)....B 530

HAYASI, N.
Transient heat transfer through a thin circular pipe due to unsteady flow in the pipe....HT 513

HAYDAY, A. A.
On heat transfer from isothermal and nonisothermal spinning bodies of revolution....HT 445

HAYWOOD, R. W.
Sixth International Conference on the properties of steam-release....P 93

HEAT-EXCHANGE EQUIPMENT
Design analysis of multistream Hampson exchanger with paired tubes....HT 202
Fixed tube-sheet heat exchangers (D)....AM 235
Heat-transfer and flow-friction characteristics of skewed-passage and glass-ceramic heat-transfer surfaces..P 72
Operating experiences with stainless-steel condenser tubes in central stations....P 401
Water analyses and their functions in selecting condenser tube alloys....P 329

HEAT TRANSFER. *See also* BOILING; CONDENSATION; HEAT-EXCHANGE EQUIPMENT; RADIATION; THERMAL STRESSES
An analytical solution of the effect of peripheral wall conduction on laminar forced convection in rectangular channels....HT 59
Approximate heat-conduction solutions for nonplanar geometries....HT 423
Convectively cooled thermoelements with variable cross-sectional area....HT 259
A correlation of the influence of sound on heat transfer as measured by Fand and Kaye....HT 314
Effect of large temperature gradients on convective heat transfer: the downstream region....HT 67
Effect of longitudinal oscillations on free convection from vertical surfaces....AM 183, (D) AM 717

HEAT TRANSFER (*continued*)
The effect of transverse temperature gradients on the heat transfer and friction for laminar flow of gases...HT 191
Effects of roughness of metal surfaces on angular distribution of monochromatic reflected radiation....HT 85
End-wall heat transfer in a rarefaction wave tube....HT 349
Exact solution of elementary transient heat conduction problem involving temperature-dependent properties..HT 420
Experiments on the diffusion thermo effect in a binary boundary layer with injection of various gases....HT 321
Free-convection heat-transfer coefficients from rectangular vertical fins..HT 439
Free convective flow of Bingham plastic between two vertical plates....HT 319
Generalized variational method for calculating radiant interchange between surfaces....HT 103
Heat conduction from circular cylinders in rarefied gases....HT 493
Heat conduction in the infinite medium with lines of discontinuities....HT 293
Heat transfer across a linearly accelerated or decelerated laminar boundary layer....HT 403
Heat transfer across vertical layers....HT 110
Heat transfer by conduction and radiation in absorbing and scattering materials....HT 143
Heat transfer by natural convection in liquids confined by two parallel plates which are inclined at various angles with respect to the horizontal....HT 77
Heat-transfer characteristics of the closed thermosyphon....HT 30
Heat transfer for flow longitudinal to a cylinder with surface mass transfer..HT 317
Heat transfer from a shrouded rotating disk to a single fluid stream....HT 485
Heat transfer in magnetohydrodynamic flow in an entrance section....HT 231
Heat transfer, thermodynamics and education. Boelter anniversary volume (BR)....AM 477
Heat transfer to a nonisothermal rotating disk with a turbulent boundary layer....HT 362
Heat transfer to laminar flow in tapered passages....AM 684
Heat transfer to mercury flowing in-line through a rod bundle....HT 312
Heat transfer to mercury in laminar flow through a tube with constant heat flux....HT 419
Heat transfer to supercritical water in smooth-bore tubes....HT 477
The influence of acoustic vibrations on heat transfer by natural convection from a horizontal cylinder to water....HT 309
Integral analysis of the flow of a heat-generating fluid in the entrance region of a parallel-plate channel....HT 313
Interfacial heat and mass transfer in a suddenly pressurized, binary liquid-vapor system....I 413
Inverse problem in transient heat conduction (D)....AM 472
Laminar heat transfer and pressure drop in isosceles triangular, right triangular, and circular sector ducts....HT 426
Laminar heat transfer in noncircular ducts by Moiré method....HT 308
Laminar heat transfer in the inlet of a uniformly heated tube....HT 425
Laminar pipe flow with mass-transfer cooling....HT 252
Moving heat sources with change of phase....HT 329
On constant-property turbulent boundary layers with variable temperature or heat flow at the wall....HT 151
On heat transfer from isothermal and nonisothermal spinning bodies of revolution....HT 445
Possible similarity solutions for heat and mass transfer equations in logarithmic spiral flows....AM 454
Radiant heat transfer to earth satellites....HT 369
Radiative heat transfer in absorbing, emitting, and scattering media....HT 161
Resonant pulsating flow and convective heat transfer....HT 507
Study of forced-convection heat transfer to supercritical hydrogen....HT 41
Surface temperatures of infinite plates subjected to sudden environment temperature changes....HT 526
A theoretical analysis of laminar forced flow and heat transfer about a rotating cone....HT 184
Thermal conductivity of nitrogen and argon....HT 177
Thermal contact resistance in a vacuum environment....HT 243
The thermal resistance of adhesive bonds....HT 310
Transient cooling of a spherical mass of high-temperature gas by thermal radiation....AM 740

HEAT TRANSFER (*continued*)
Transient heat conduction at high thermal flux....HT 49
Transient heat transfer through a thin circular pipe due to unsteady flow in the pipe....HT 513
Transient temperature distribution in a slab subject to thermal radiation..HT 117
Unsteady stagnation-point heat transfer....HT 221

HEDBERG, O.
Kaplan turbine blade-operating mechanism without oil head (D)....P 304

HEISER, W. H.
Analysis of a magnetohydrodynamic ejector....AM 680

HENDRICKS, R. C.
Effect of large temperature gradients on convective heat transfer: the downstream region (D)....HT 73
Study of forced-convection heat transfer to supercritical hydrogen (D)....HT 47

HENRY, J.
Use of hydrogen bubbles for quantitative determination of time-dependent velocity fields in low-speed water flows....B 429

HERBERT, R. E.
Random vibrations of plates with large amplitudes....AM 547

HERMAN, HARRY
Transient response of a periodically supported cylindrical shell immersed in a fluid medium....AM 582

HERRMANN, G.
Buckling of structural elements subject to surface shears....AM 194
On the destabilizing effect of damping in nonconservative elastic systems....AM 592
Response of a submerged cylindrical shell to an axially propagating step wave....AM 788

HERSEY, M. D.
Lubrication phenomena in spur gears: capacity, film thickness variation, and efficiency (D)....B 663

HESKESTAD, GUNNAR
A generalized Taylor hypothesis with application for high Reynolds number, turbulent shear flows....AM 735
Hot-wire measurements in a plane turbulent jet....AM 721

HESS, H. L.
Study of forced-convection heat transfer to supercritical hydrogen....HT 41

HETENYI, M.
Transmission of force between two semi-infinite solids....AM 671

HETSRONI, G.
Momentum transfer in thermally asymmetric turbulent jets....HT 429

HILL, R. (editor)
Progress in solid mechanics, vol. 4 (3R)....AM 478

HILLIER, M. J.
Yield, flow and tensile plastic instability....AM 697

HIRS, G. G.
Externally pressurized bearings with inherent friction compensation....AM 285

HISAKADO, TERUMASA
On the mechanism of contact between metal surfaces—the penetrating depth and the average clearance....B 666

HOFF, N. J.
Buckling of axially compressed circular cylindrical shells at stresses smaller than the classical critical value....AM 542
Low buckling stresses of axially compressed circular cylindrical shells of finite length....AM 533
Nonlinear model study of the thermal buckling of thin elastic shells....AM 71

HOLLIDAY, G. H.
Strength of threaded joints for steel pipe (D)....I 134

HOLT, A. D.
Stress and velocity fields in the gravity flow of bulk solids (D)....AM 472

HONIG, J. M.
Experiments on room-temperature Nernst-Ettingshausen refrigerators..I 21

HOOPER, LESLIE J.
Philosophy of power test codes and their development (D)....P 112

HOPPMANN, W. H., II
Apparatus for measuring thrust produced on rotating body immersed in a liquid....AM 201, (AC) AM 953
Physical model of a 3-constant isotropic elastic material....AM 837

HORNBECK, ROBERT W.
Effect of radial momentum flux on flow in the entrance of a porous tube...AM 195

HORNUNG, K. G.
Frictional characteristics of liquid hydrostatic journal bearings....B 163

HORVAY, G.
Dip-forming process....HT 1

HOSHI, T.
Optimum diameter and position of a fly cutter for milling 0.45 C steel, 195 BhN and 0.4 C steel, 167 BhN at light cuts....I 442
Performance of tungsten carbide, titanium carbide, and oxide tools in finish turning of C-30 gray iron....I 344

HOSKINSON, D. W.
Operating experiences with stainless-steel condenser tubes in central stations....P 401

HOVEY, L. M.
Adjustment of hydro-governor characteristics using separate drive for the speed-sensing element....P 13
Hydraulic turbine setting criteria (D)..P 298

HOWARD, C. P.
Heat-transfer and flow-friction characteristics of skewed-passage and glass-ceramic heat-transfer surfaces..P 72

HOWELL, HAROLD I.
Philosophy of power test codes and their development (D)....P 112

HRYCAK, P.
Generalized variational method for calculating radiant interchange between surfaces (D)....HT 109

HSIAO, C. C.
Stress distribution in anisotropic viscoelastic hollow sphere....AM 31

HSIEH, DIN-YU
Some analytical aspects of bubble dynamics....B 991

HSU, C. S.
Further results on parametric excitation of a dynamic system....AM 373, ...(AC) AM 957

HSU, Y. Y.
Photographic study of nucleate pool boiling on a horizontal surface (D) ....HT 27
Study of forced-convection heat transfer to supercritical hydrogen (D)....HT 47

HUANG, NAI CHIEN
Axisymmetrical creep buckling of clamped shallow spherical shells..AM 323
Unsymmetric buckling of thin shallow spherical shells (AC)....AM 466

HUANG, P. C.
Deterioration in strength of brittle-state porous bodies ....AM 43

HULBERT, L. E.
Accurate calculation of stress distributions in multiholed plates....I 331

HUMPHREYS, JOHN S.
Plastic deformation of impulsively loaded straight clamped beams....AM 7

HUNT, K. H.
A number-synthesis survey of three-dimensional mechanisms (D)....I 219

HWANG, CHING-LAI
Optimization of step rockets by the discrete maximum principle....I 419

HWANG, CHINTSUN
Longitudinal sloshing of liquid in a flexible hemispherical tank....AM 665

HYDRAULIC ACTUATORS
Pressure peaks in the hydraulic actuator ....B 953

HYDRAULIC SYSTEMS. *See* WAVE MECHANICS

HYDRAULICS
Distortion of short pulses in tapered-tube pulse transformers. Part I—inviscid liquid....B 465
Reflection of waterhammer pressure waves from minor losses....B 445
Step responses of liquid lines with frequency-dependent effects of viscosity ....B 504

HYDRODYNAMICS
Hydrodynamic forming....I 105
Hydrodynamics in theory and application (BR)....AM 958

HYDROFOILS
Effect of surface roughness on cavitation performance of hydrofoils—Report 1 ....B 495

HYSTERETIC SYSTEMS
Steady-state response of a two-degree-of-freedom bilinear hysteretic system ....AM 151
Steady-state response of the double bilinear hysteretic model....AM 921

I

IMPACT
Longitudinal impact of a semi-infinite, cylindrical, viscoelastic shell....AM 813

INDUCERS
System oscillations associated with cavitating inducers....B 917

INEQUALITIES
Differential- und integral-ungleichungen (BR)....AM 477

INFANTE, E. F.
A method for the determination of the domain of stability of second-order nonlinear autonomous systems (AC) ....AM 231
On the stability of the oscillations of a simple surge tank....AM 945

INOUYE, K.
Transient heat transfer through a thin circular pipe due to unsteady flow in the pipe....HT 513

INSTRUMENTS, FLOW MEASURING
Driving torques in a theoretical model of a turbine meter....B 413

INSTRUMENTS, PRESSURE MEASURING
Elastic shell-theory formulation for Bourdon tubes....B 1072

INSTRUMENTS, TEMPERATURE MEASURING
A dual-element transducer for measuring high gas-stream temperatures....HT 397

IVANY, R. D.
Cavitation bubble collapse in viscous, compressible liquids—numerical analysis....B 977

IVES, K. D.
Experimental determination of the elastic behavior of orthotropic plates (D)...I 317

IWAN, W. D.
Steady-state response of a two-degree-of-freedom bilinear hysteretic system ....AM 151
Steady-state response of the double bilinear hysteretic model....AM 921

IYENGAR, H. S. RAMA
Some effects of cutting fluids on chip formation in metal cutting....I 36

J

JACKSON, F.
Moving heat sources with change of phase....HT 329

JACKSON, J. D.
Laminar radial flow between parallel plates (D)....AM 715

JACKSON, T. W.
Resonant pulsating flow and convective heat transfer....HT 507

JAEGER (author)
Grenztragfahigkeits theorie der platten (BR)....AM 239

JAHSMAN, W. E.
Combined bending and compression of a pressurized circular cylindrical membrane column....I 372
Progress in solid mechanics, vol. 4 (BR)....AM 478

JAKOBSEN, J. K.
Supercavitating cascade flow analysis (errata)....B 1078

JAMES, R. E.
An accurate equation for the computation of the friction factor for smooth pipes from the Reynolds number....AM 443

JANNONE, J.
Initial boundary-layer effects on laminar flows with wall slot injection....HT 157
A study of linearized approximations to the boundary-layer equations...AM 757

JANTSCHER, H. N.
Heat transfer to a nonisothermal rotating disk with a turbulent boundary layer ....HT 362

JEKAT, W. K.
Slip factor of a radial-bladed centrifugal compressor (D)....P 190

JENG, D. R.
Unsteady stagnation-point heat transfer ....HT 221

JENIKE, A. W.
Gravity flow of frictional-cohesive solids —convergence to radial stress fields ....AM 205
Stress and velocity fields in the gravity flow of bulk solids (D)....AM 472

JENKINS, D. R.
Kinematic-hardening in zinc-alloy tubes ....AM 849

JETS. *See also* FLUID AMPLIFIERS
Analysis of lift augmentation of vertical solid jets in proximity of the ground ....AM 263
Axisymmetrical turbulent swirling jet ....AM 258
Hot-wire measurements in a plane turbulent jet....AM 721
Momentum transfer in thermally asymmetric turbulent jets....HT 429
Two-dimensional turbulent jet mixing ....AM 198

JOHANSON, J. R.
A rolling theory for granular solids...AM 842

JOHNSON, A. R.
Motion control for a series system of "N" degrees of freedom using numerically derived and evaluated equations ....I 191

JOHNSON, C. D.
On a problem of Letov in optimal control ....B 81

JOHNSON, G. D.
Kaplan turbine blade-operating mechanism without oil head (D)....P 305

JOHNSON, H. A. (editor)
Heat transfer, thermodynamics and education. Boelter anniversary volume (BR)....AM 477

JOHNSON, K. L.
On the oscillation at the final stages of rolling of a hard sphere on an elastic base (D)....B 711

JOHNSON, RAY C.
A spring-actuated, cam-follower system: design theory and experimental results (D)....I 286

JOHNSON, ROBERT L.
Chemical modification of friction surfaces (D)....B 776

JOHNSON, R. M.
Performance of small-sized, critical flow-meter assembly (D)....B 1027

JONAKIN, J.
Prevention of residual oil combustion problems by use of low excess air and magnesium additive....P 229

JONES, I. W.
Vibration of an internally damped sandwich plate radiating into a fluid medium....I 379

JONES, JOHN P.
Note on an orthogonality relation in a problem on a rotating string....AM 442
Note on the instability of a rotating string....AM 939

JONES, L. R.
Diffuse-radiation view factors between two spheres....HT 421

JONG, ING-CHANG
On the destabilizing effect of damping in nonconservative elastic systems ....AM 592

JORDAN, P. F.
Analysis of shells of revolution subjected to symmetrical and nonsymmetrical loads (D)....AM 467

JORDAN, R. C.
Performance and evaluation of concentrating solar collectors for power generation....P 1

JOUBERT, P. N.
Film cooling of an adiabatic flat plate in zero pressure gradient in the presence of a hot mainstream and cold tangential secondary injection....HT 409

JUNKER, A. T.
Bending of thick steel plates....B 290

K

KAKARALA, C. R.
Heat transfer to supercritical water in smooth-bore tubes....HT 477

KALNINS, A.
Analysis of shells of revolution subjected to symmetrical and nonsymmetrical loads (AC)....AM 468
On free and forced vibration of rotationally symmetric layered shells ....AM 941
On nonsymmetric dynamic problems of elastic spherical shells....AM 525

KAO, S.
Design analysis of multistream Hampson exchanger with paired tubes....HT 202

KAPOOR, D. V.
Photoelastic analysis of tool-chip interface stresses....I 495

KAUFFMANN, W. M.
Development of a special high-efficiency turbocharger compressor for application on straight-turbocharged two-cycle engines (D)....P 104

KAUZLARICH, J. J.
Ablation of reinforced plastic for heat protection....AM 177, (AC) AM 951

KEGG, R. L.
Cutting dynamics in machine-tool chatter: contribution to machine-tool chatter research—3....I 464

KEHRT, L. G.
Analytical and experimental investigation of multiple-disk turbines (D)....P 36

KELLER, ROBERT E.
Accuracy of one method for mechanism simulation by electronic analog computer....I 235
Sketching rules for the curves of Burmester mechanism synthesis....I 155

KELLY, J. L.
Analysis of the motion of deep-water drill strings—part 2: forced rolling motion (D).....I 149

KERR, A. D.
Bending of circular plates sealing an incompressible liquid.....AM 704

KERR, S. LOGAN
Philosophy of power test codes and their development.....P 105

KESSLER, G. W.
Fuel-ash corrosion and its effect on boiler design.....P 210

KESTIN, J.
Heat transfer across a linearly accelerated or decelerated laminar boundary layer .....HT 403
Sixth International Conference on the properties of steam—a report.....P 87

KEYES, F. G.
Thermal conductivity of nitrogen and argon.....HT 177

KEZIOS, S. P.
Mass transfer from a rotating cone in axisymmetric flow.....HT 469

KIKUKAWA, M.
Push-pull fatigue strength of mild steel at very high frequencies of stress up to 100 kc/s.....B 857

KINEMATICS
Acceleration axes in spherical kinematics .....I 150
Accuracy of one method for mechanism simulation by electronic analog computer.....I 235
Analysis of approximate four-bar straight-line mechanisms.....I 291
Analysis of errors in the double Hooke joint.....I 251
Analytical kinematic synthesis by finite displacements.....I 161
Analytical synthesis of function generators using the slider-crank inversion.....I 325
Application of dual-number quaternion algebra to the analysis of spatial mechanisms (D).....AM 221
A four-bar linkage adjustable for variable straight line motions.....I 287
Hesitation.....I 205
Higher path-curvature analysis in plane kinematics.....I 184
An iterative method for the displacement analysis of spatial mechanisms (D).AM 220
Kinematic synthesis of linkages (BR) .....AM 477
Method for determining the instantaneous center of acceleration for a given link.....AM 217
Motion control for a series system of "N" degrees of freedom using numerically derived and evaluated equations .....I 191
A number-synthesis survey of three-dimensional mechanisms.....I 213
On polygonal action in roller-chain drives .....I 243
On the existence of a cycloidal Burmester theory in planar kinematics (D)...AM 717
On the multiple generation of coupler-curves.....I 177
Sketching rules for the curves of Burmester mechanism synthesis.....I 155
Solution to Euler's gyrodynamics—I (D).....AM 228
Solution to the vector tetrahedron equation.....I 228
Static force and torque analysis of spherical four-bar mechanisms.....I 221
Synthesis of four-bar linkage function generators by means of equations of motion.....I 170
Transmission of force between two semi-infinite solids.....AM 671
Velocity, acceleration, and static-force analyses of spatial linkages.....AM 903

KIRKPATRICK, R. C.
Transient heat conduction at high thermal flux.....HT 49

KLAUS, E. E.
Effect of oxidation on boundary friction of steel in hydrocarbon media and critical friction duties under which cold and hot seizure (or welding) develop (D).....B 745
Properties of lubricants.....B 797

KLEIMENOV, B. V.
Chemical modification of friction surfaces .....B 771

KLINE, L. V.
Buckling of circular plate on elastic foundation.....I 323

KLINE, S. J.
Use of hydrogen bubbles for quantitative determination of time-dependent velocity fields in low-speed water flows .....B 429

KLOSNER, J. M.
Transient response of a periodically supported cylindrical shell immersed in a fluid medium.....AM 562

KOBAYASHI, S.
A new analysis of the forces in orthogonal metal cutting.....I 480

KOELLER, P.
Design and operation of aeration test stand for testing turborotors of high specific speed.....B 409

KOEPCKE, R. W.
On the control of linear systems with pure time delay.....B 74

KOH, J. C. Y.
Laminar free convection from a nonisothermal cylinder.....HT 237
Pressure distribution and heat transfer for flow over simulated cylindrical parachutes.....HT 521

KOITER, W. T.
Rectangular tensile sheet with symmetric edge cracks (D).....AM 237

KOONG, SHIAN-SHAW
Experimental measurements of mass transfer from a rotating disk in a uniform stream.....HT 422

KOREPOVA, I. V.
Effect of oxidation on boundary friction of steel in hydrocarbon media and critical friction duties under which cold and hot seizure (or welding) develop.....B 741

KOROVCHINSKI, M. V.
Plane-contact problem of thermoelasticity during quasi-stationary heat generation on the contact surfaces.....B 811

KRAFFT, J. M.
A comparison of the initiation with the rapid propagation of a crack in a mild steel plate.....B 257
Plane-strain fracture toughness of high-strength aluminum alloys (D).....B 916

KRAGHELSKY, I. V.
Calculation of wear rate.....B 785

KRAUS, H.
Accurate calculation of stress distributions in multiholed plates (D).....I 336
Analysis of shells of revolution subjected to symmetrical and nonsymmetrical loads (D).....AM 467

KROTINE, F. T.
A behavioral model for the fracture of surface-hardened components.....B 871

KU, P. M.
Thermal effects in contact fatigue under oscillatory normal load.....B 177

KUESTER, C. K.
Operating experiences with stainless-steel condenser tubes in central stations.....P 401

KUKIN, IRA
Low-excess-air combustion of heavy fuel—high-temperature deposits and corrosion (D).....P 387

KUNZ, H. R.
Study of forced-convection heat transfer to supercritical hydrogen.....HT 41
Turbulent boundary-layer growth in annular diffusers.....B 535

KUSHNER, H. J.
Near-optimal control in the presence of small stochastic perturbations.....B 103

KUZMA, D. C.
Magnetohydrodynamic parallel-plate slider bearing.....B 778

L

LALL, P. S.
Transient cooling of a spherical mass of high-temperature gas by thermal radiation.....AM 740

LAMERS, R. P.
Tip-clearance effects in centrifugal pumps .....B 932

LAND, M. L.
Turbocharged two-stroke-cycle gas engines.....P 421

LANDIS, F.
Heat transfer across vertical layers (D) .....HT 114
Heat transfer by natural convection in liquids confined by two parallel plates which are inclined at various angles with respect to the horizontal (D) .....HT 82

LANGHAAR, H.
Buckling of a long fiber-wound cylindrical shell due to stresses caused by windings.....AM 81

LANGNER, C. G.
Dynamic stresses in a finite elastic body of revolution due to longitudinal impact.....AM 699

LARDNER, T. J.
Approximate heat-conduction solutions for nonplanar geometries.....HT 423
Stresses in a thick plate with axially symmetric loading.....AM 458

LARSEN, P. S.
Interfacial heat and mass transfer in a suddenly pressurized, binary liquid-vapor system.....I 413

LASALLE, J. P.
A method for the determination of the domain of stability of second-order nonlinear autonomous systems (D) .....AM 230

LECHNER, G.
Measurement of surface temperatures on gear teeth.....B 641

LEE, E. H.
On the generation of residual stresses in thermoviscoelastic bodies.....AM 874

LEE, SHAO-LIN
Axisymmetrical turbulent swirling jet .....AM 258

LEE, W. F. Z.
Density effect and Reynolds number effect on gas-turbine flowmeters.....B 1043

LEFCORT, M. D.
An investigation into unsteady blade forces in turbomachines.....P 345

LEKO, TOMA
Effect of pipe geometry on the efficiency of solid-liquid flow.....AM 441
On the bending problem of prismatical beam by terminal transverse load .....AM 210

LEMAY, IAIN
Hydrogen evolution and steam dissociation in steam generators.....P 405
Primary creep design of thick tubes (D) .....B 383

LEMON, J. R.
Application of self-excited machine-tool chatter theory: contribution to machine-tool chatter research—4.....I 471
Structural dynamics in machine-tool chatter: contribution to machine-tool chatter research—2.....I 455

LEPPERT, G.
Effect of large temperature gradients on convective heat transfer: the downstream region.....HT 67
The effect of transverse temperature gradients on the heat transfer and friction for laminar flow of gases...HT 191

LEUM, MARK
Adjustment of hydro-governor characteristics using separate drive for the speed-sensing element (D).....P 17
Hydraulic speed governor with major governor problems solved (D).....B 8
Instability of a hydraulic turbine with a very long penstock (D).....P 293

LEUNG, PAUL
Boiler feed pump drives.....P 237

LEVINSON, MARK
Application of the principle of stationary potential energy to some problems in finite elasticity.....AM 656
Complementary energy theorem in finite elasticity.....AM 826

LEVY, ARTHUR
A progress report—fundamentals of thermochemical corrosion reactions..P 116
SO_3 formation in H_2S flames.....P 374

LEVY, S.
Prediction of two-phase critical-flow rate.....HT 53
Shear and bending of the walls of short cylindrical shells.....I 309

LEWIS, D. M.
The thermal resistance of adhesive bonds.....HT 310

LIANIS, GEORGE
Application of irreversible thermodynamics in finite viscoelastic deformations.....AM 623

LICHT, L.
Solution of the stability problem for 360 deg, self-acting, gas-lubricated bearings (D).....B 210

LICHTMAN, J. Z.
Initial phases of damage to test specimens in a cavitating venturi (D).....B 463

LIEBERMAN, P.
Blast-wave propagation in hydraulic conduits.....P 19, (AC) P 440

LIEBOWITZ, H. (editor)
High-temperature structures and materials (BR).....I 521

LIN, S. H.
Radiant interchange among curved specularly reflecting surfaces—application to cylindrical and conical cavities .....HT 299

LINDBERG, H. E.
Dynamic plastic buckling of a thin cylindrical shell containing an elastic core.....AM 803
Impact buckling of a thin bar.....AM 315

LINDBERG, R. S.
Toughness of warm-worked martensitic steels.....B 307

LINDHOLM, U. S.
Transient heat conduction at high thermal flux....HT 49
Wave propagation in an elastic nonhomogeneous bar of finite length...AM 135

LING, CHIH-BING
On the stresses in a semi-infinite strip subjected to a concentrated load.AM 456

LING, F. F.
On the mechanism of contact between metal surfaces—the penetrating depth and the average clearance (D).....B 672
On the oscillation at the final stages of rolling of a hard sphere on an elastic base (D).....B 711
Surface displacement of a convective elastic half-space under an arbitrarily distributed fast-moving heat source..B 729

LINKAGES. *See* KINEMATICS

LIQUID-VAPOR SYSTEMS. *See* GAS-LIQUID MIXTURES

LITTELL, A.
Use of hydrogen bubbles for quantitative determination of time-dependent velocity fields in low-speed water flows .....B 429

LIU, Y. H.
Performance and evaluation of concentrating solar collectors for power generation.....P 1

LOCK, G. S. H.
Heat transfer across vertical layers (D) .....HT 115
Heat transfer by natural convection in liquids confined bv two parallel plates which are inclined at various angles with respect to the horizontal (D)..HT 83
Heat-transfer characteristics of the closed thermosyphon.....HT 30

LODGE, A. S. (author)
Elastic liquids (BR).....AM 477

LOEWENSTEIN, PAUL
Drawing of tubes filled with particulate solids (D).....I 84

LOFERSKI, J.
Radioisotopic power generation (BR) .....AM 958

LONG, G. W.
Structural dynamics in machine-tool chatter: contribution to machine-tool chatter research—2.....I 455

LONG, R. L.
Review of recent Air Force research on selective solar absorbers.....P 277

LOUTZENHEISER, C. B.
Pressure peaks at the ends of plane-strain rigid die contacts (elastic).....AM 462

LOVE, G.
Buckling of a long fiber-wound cylindrical shell due to stresses caused by windings.....AM 81

LOVE, T. J.
Radiative heat transfer in absorbing, emitting, and scattering media....HT 161

LUBRICANTS AND LUBRICATION. *See also* BEARINGS
Action of neutral organic phosphates as EP additives.....B 761
Advanced lubricating oil reduces gas-engine maintenance costs.....P 169
Antiwear and antifriction properties of polyorganosiloxanes and their mixtures with hydrocarbons.....B 747
Chemical modification of friction surfaces .....B 771
Contact pressures and stresses in one theoretically investigated case.....B 1083
Critical temperature of oil with point and line-contact machines.....B 754
Effect of oxidation on boundary friction of steel in hydrocarbon media and critical friction duties under which cold and hot seizure (or welding) develop.....B 741
Hydromagnetic squeeze films between two conducting surfaces.....B 818
Hydromagnetic theory for squeeze films .....B 142
A linearized turbulent-lubrication theory .....B 675
Lubrication phenomena in spur gears: capacity, film thickness variation, and efficiency.....B 655
Lubrication review: a digest of the literature for 1963.....B 791
Mechanism of boundary lubrication and the edge effect.....B 735
A numerical solution for the pressure, temperature, and film thickness between two infinitely long, lubricated rolling and sliding cylinders, under heavy loads.....B 695
Rolling-contact lubrication—the application of elastohydrodynamic theory..B 170
A table of the journal-bearing integral .....B 533
Thermal wedge lubrication of parallel-surface thrust bearings.....B 823

LUND, JORGEN W.
Stability of an elastic rotor in journal bearings with flexible, damped supports.....AM 911

LUNDGREN, T. S.
Inverse problem in transient heat conduction (AC).....AM 473

LUR'E, A. M. (author)
Three-dimensional problems of elasticity (BR).....AM 477

M

MA, J. T.
Effect of external pressurization on self-acting foil bearings (D).....B 638
An investigation of self-acting foil bearings.....B 837

MACHINE DESIGN
Mechanical design and systems handbook (BR).....AM 478

MACHINE-SHOP PRACTICE
Grundzuse Der Zerspanungslehre (Principles of machining knowledge) (BR) .....I 96

MACHINE TOOLS. *See also* METAL CUTTING
Application of self-excited machine-tool chatter theory: contribution to machine-tool chatter research—4.....I 471
Cutting dynamics in machine-tool chatter: contribution to machine-tool chatter research—3.....I 464
Grundzuse Der Zerspanungslehre (Principles of machining knowledge) (BR).I 96
Optimum diameter and position of a fly cutter for milling 0.45 C steel, 195 BhN and 0.4 C steel, 167 BhN at light cuts.....I 442
Random vibration in mechanical systems (BR).....I 96
Rheological aspect of tool wear in machining graphite.....I 359
Structural dynamics in machine-tool chatter: contribution to machine-tool chatter research—2.....I 455
Study of the radiometric method and use of the liquid scintillation technique for tool-wear determination.....I 47
Theory of self-excited machine-tool chatter: contribution to machine-tool chatter research—1.....I 447

MACHINING. *See* METAL CUTTING

MADAY, CLARENCE J.
A variational principle applied in the plane slider bearing.....B 1081

MAGEE, P. M.
Effect of large temperature gradients on convective heat transfer: the downstream region.....HT 67

MAGNETIC TAPE
Relaxation of internal forces in a wound reel of magnetic tape.....AM 865

MAGNETOHYDRODYNAMICS
Analysis of a magnetohydrodynamic ejector.....AM 680
Fuels for advanced power-generation systems.....P 125
Heat transfer in magnetohydrodynamic flow in an entrance section.....HT 231
Linearized analysis of one-dimensional magnetohydrodynamic flows (BR).AM 718
Pressure surges in magnetoviscous flow .....B 478

MAHER, R. T.
Books on material processing (BR)....I 521

MALANOSKI, S. B.
On the behavior of gas-lubricated journal bearings subjected to sinusoidally time-varying loads (D).....B 599
Static and dynamic characteristics of the spiral-grooved thrust bearing....B 547

MANJOINE, M. J.
Biaxial brittle-fracture tests.....B 293

MANN, ROBERT W.
Analysis of approximate four-bar straight-line mechanisms (D).....I 297
Power-transfer characteristics for compressible flow from a stationary nozzle to a detached receiver (D).....B 28

MANNIK, A. O.
Chemical modification of friction surfaces .....B 771

MANN-NACHBAR, P.
Preferred mode shape in the linear buckling of circular cylindrical shells under axial compression.....AM 793

MANNY, E. H.
Pilot-plant investigation of factors affecting low-temperature corrosion in oil-fired boilers (D).....P 202

MANSON, S. S.
Further investigation of a relation for cumulative fatigue damage in bending .....I 25

MANUFACTURING
Manufacturing properties of materials (BR).....AM 478

MARCUS, B. D.
Measured temperature profiles within the superheated boundary layer above a horizontal surface in saturated nucleate pool boiling of water.....HT 333

MARCUS, L.
Buckling of a long fiber-wound cylindrical shell due to stresses caused by windings.....AM 81

MARKUS, H.
Plane-strain fracture toughness of high-strength aluminum alloys.....B 904

MARRIS, A. W.
Generation of secondary vorticity in an incompressible fluid (AC).....AM 230
On the bending of streamlines toward vortex lines.....AM 203
Significance of the vortex breakdown phenomenon (D).....B 523

MARSELLI, E. M.
Gas-side corrosion in coal and oil-fired utility units (D).....P 257

MARSH, H.
Stability analysis of gas-lubricated, self-acting, plain, cylindrical, journal bearings of finite length, using Galerkin's method (D).....B 192

MARTIN, D. E.
Plastic strain fatigue in air and vacuum .....B 850

MARTIN, J. B.
Displacement-bound principle for inelastic continua subjected to certain classes of dynamic loading.....AM 1

MASS TRANSFER
Convective mass transfer (BR).....AM 238
Experimental measurements of mass transfer from a rotating disk in a uniform stream.....HT 422
Mass transfer from a rotating cone in axisymmetric flow.....HT 469
Possible similarity solutions for heat and mass-transfer equations in logarithmic spiral flows.....AM 454

MASS-TRANSFER COOLING. *See* HEAT TRANSFER

MASSEY, B. S.
Laminar boundary layers and their separation from curved surfaces.....B 483

MASSOUD, M. P.
Vectorial derivation of the equations for small vibrations of twisted curved beams.....AM 439

MASTIN, R. G.
Combustibles versus nitrogen fixation in gas-engine operation and lubrication.....P 175

MATERIALS
Structure and property of materials, vol. 1; thermodynamics of structure, vol. 2 (BR).....AM 718

MATERIALS PROCESSING
Review of materials processing literature, 1964.....I 511

MATHEMATICS
Differential- und integral-ungliechungen (BR).....AM 477
Handbook of mathematical functions with formulas, graphs and mathematical tables (BR).....AM 239
Successive generation of Chebychev approximation solution.....B 17

MATTERS, R. G.
High-temperature rupture, fatigue, and damping properties of AISI Designation 616 (type 422 stainless) steel .....B 325

MATVEEVSKY, R. M.
Critical temperature of oil with point and line-contact machines.....B 754

MAY, HANS
Investigations of forced-convection liquid-cooled gas-turbine blades.....P 57

MAYFIELD, R. M.
Drawing of tubes filled with particulate solids.....I 80

MCADAMS, H. T.
Grinding.....I 518

MCCALL, J. L.
Electron-microprobe study of scale formations on Cr-Mo superheater tubing after long-time exposure to 2000 psi steam of 1100 F and 1200 F.....P 205

MCCLOY, D.
Pressure peaks in the hydraulic actuator .....B 953

MCCLURE, G. M.
Fracture resistance in line pipe.....I 265

MCCOMAS, S. T.
Laminar pressure drop associated with continuum entrance region and for slip flow in a circular tube.....AM 765

MCCORMICK, J. M.
Sound radiation from submerged cylindrical shells of finite length.....I 393

McELIGOT, D. M.
Effect of large temperature gradients on convective heat transfer: the downstream region....HT 67

McGARRITY, R. V.
A spring-actuated, cam-follower system: design theory and experimental results....I 279

McGLASSON, R. L.
Strength of threaded joints for steel pipe (D)....I 135

McGREW, J. M.
Analysis and test of the screw seal in laminar and turbulent operation....B 153

McHENRY, W. DENNIS
Study of the radiometric method and use of the liquid scintillation technique for tool-wear determination....I 47

McHUGH, J. D.
Analysis and test of the screw seal in laminar and turbulent operation....B 153

McLARNAN, C. W.
Analytical synthesis of function generators using the slider-crank inversion....I 325

McLEAN, WILLIAM G.
Philosophy of power test codes and their development (D)....P 112

MECHANICS
Further results on parametric excitation of a dynamic system....AM 373, (D) AM 956
A method for checking force calculations in plane and spatial structures....AM 935
Newton's method applied to problems in nonlinear mechanics....AM 383
On the mechanics of non-Newtonian media....B 689
On the mechanism of contact between metal surfaces—the penetrating depth and the average clearance....B 666
Progress in solid mechanics, vol. 4 (BR) AM 478
Steady-state response of the double bilinear hysteretic model....AM 921
Tensors in mechanics and elasticity (BR)....AM 238

MECHANISMS. *See also* KINEMATICS
A spring-actuated, cam-follower system: design theory and experimental results....I 279

MECK, H. R.
An approximate analysis of deflections of beams in creep bending....B 899
Stress-rupture of metals under increasing stress....B 875
A survey of methods of stability analysis of ring-stiffened cylinders under hydrostatic pressure....I 385

MEMBRANES
Finite deformation of a pressurized membrane strip....AM 451
A linearized large-deformation analysis for rotationally symmetric membranes....AM 444
Membrane natural frequencies for spherical caps....AM 432

MERRITT, H. E.
Theory of self-excited machine-toll chatter: contribution to machine-tool chatter research—1....I 447

MERRYMAN, E. L.
A progress report—fundamentals of thermochemical corrosion reactions..P 116
SO_3 formation in H_2S flames....P 374

MERTE, H., JR.
A photographic study of boiling in an accelerating system....HT 374

MESCALL, J. F.
Large deflections of spherical shells under concentrated loads....AM 936

MESLER, R. B.
A photographic study of the dynamics and damage capabilities of bubbles collapsing near solid boundaries....B 511

METAL BLANKING. *See* PUNCHING

METAL CUTTING
Deformation during chip formation....I 53
Dynamics of the metal-cutting process.I 429
Gun drilling and trepanning (BR)....I 522
High-temperature structures and materials (BR)....I 521
Improving ultrasonic machining rates—some feasibility studies....I 39
Machining principles and cost control (BR)....I 522
Metal-cutting analysis....I 511
A new analysis of the forces in orthogonal metal cutting....I 480
Performance of tungsten carbide, titanium carbide, and oxide tools in finish turning of C-30 gray iron....I 344
Photoelastic analysis of tool-chip interface stresses....I 495
1963 Review of metal processing literature....I 85
Some effects of cutting fluids on chip formation in metal cutting....I 36

METAL DRAWING. *See also* TUBES AND TUBING
Strip-drawing experiments with a sigmoidal die profile....I 425

METAL EXTRUSION
Analysis of metal extrusion....I 57
Hydrostatic extrusion....I 487
Plastic working of metals....I 516

METAL FAILURE
A behavioral model for the fracture of surface-hardened components....B 870
Creep and rupture behavior of low-alloy steels in high-pressure hydrogen environment....B 313
Electron fractographic studies of mechanical fracture processes in metals....B 299
Stress-rupture of metals under increasing stress....B 875

METAL FATIGUE
Correlation of fatigue tests of thick-wall cylinders subjected to repeated internal pressure....B 405
Effect of composition and microstructure on the low-cycle fatigue strength of structural steels....B 269
Further investigation of a relation for cumulative fatigue damage in bending....I 25
An interpretation of the mechanics of crack growth by fatigue....B 230
Low-cycle fatigue evaluation of Inconel 713C and Waspaloy....B 275
Low cycle-fatigue life of turbine-generator retaining rings determined by stress-cycling tests....B 245
Plastic strain fatigue in air and vacuum.B 850
Push-pull fatigue strength of mild steel at very high frequencies of stress up to 100 kc/s....B 857
Thermal fatigue of a nickel-base alloy....B 237

METAL FORGING
1963 Review of metal processing literature....I 85

METAL FORMING. *See also* METALWORKING
Die design handbook (BR)....I 522
Dip-forming process....HT 1
Hydrodynamic forming....I 105

METAL HARDENING
A behavioral model for the fracture of surface-hardened components....B 871
Kinematic-hardening in zinc-alloy tubes....AM 849

METAL ROLLING
Plastic working of metals....I 516
1963 Review of metal processing literature....I 85
A rolling theory for granular solids...AM 842

METAL TESTING
Biaxial brittle-fracture tests....B 293
Electron fractographic studies of mechanical fracture processes in metals....B 299
An engineering basis for establishing radiographic acceptance standards for porosity in steel weldments....B 887

METALLURGY. *See also* AUTOMATIC CONTROL
The smelting of ferroalloys in the blast furnace using oxygen-enriched blast (BR)....I 522

METALS
Elementary dislocation theory (BR)...I 521
Energy storage in metals at high pressures....B 385
Introduction in the crystallography of martensitic transformations (BR)...I 521
Mechanical properties of metals (BR)....I 96

METALWORKING
Metalworking fluids....I 920
Plastic working of metals....I 516
1963 Review of metal processing literature....I 85

METZGER, D. E.
Heat transfer from a shrouded rotating disk to a single fluid stream....HT 485

MEYER, J. E.
Numerical techniques for boiling flow stability analyses....HT 311

MEYER, W. E.
Development and application of nomographs for an analysis of compression-ignition engines (D)....P 154

MEYER ZUR CAPELLEN, W.
On the existence of a cycloidal Burmester theory in planar kinematics (D)...AM 717

MEYFARTH, PHILIP F.
Experimental study of flow through moving orifices....B 1082

MICHAEL, W. A.
Effect of external pressurization on self-acting foil bearings (D)....B 638

MIKLOWITZ, J.
Transient compressional waves in an infinite elastic plate, generated by a time-dependent radial body force...AM 706
Elastic wave propagation in rods of arbitrary cross section....AM 290

MILLER, DAVID
Handbook of mathematical functions with formulas, graphs, and mathematical tables (BR)....AM 239
Maximum flow rate of a single-component, two-phase mixture (D)....HT 141

MILLER, J. H.
Condensation of vapor on a vertical plate with a transverse electrostatic field....HT 197

MILLER, R. W.
Driving torques in a theoretical model of a turbine meter....B 413

MITCHELL, J. W.
Heat transfer from a shrouded rotating disk to a single fluid stream....HT 485

MITCHELL, L. H.
Stress concentration at semicircular notch....AM 938

MOGHE, S. R.
Stress distribution in anisotropic viscoelastic hollow sphere....AM 31

MOODY, F. J.
Maximum flow rate of a single-component, two-phase mixture....HT 134

MOONEY, J.
Buckling of structural elements subject to surface shears....AM 194

MOORS, D. E.
Gas-lubricated stepped thrust bearing—a comprehensive study....B 213

MORAN, W. H.
Uranium-molybdenum alloy for use in a prompt-burst reactor....B 865

MORI, H.
Theoretical solution as a boundary-value problem for externally pressurized porous gas-bearings....B 622
Theory of externally pressurized circular thrust porous gas bearing....B 613

MORROW, JODEAN
Low-cycle fatigue evaluation of Inconel 713C and Waspaloy....B 275

MORTENSEN, R. E.
Solution to Euler's gyrodynamics—1 (D)....AM 228

MOTE, C. D., JR.
Free vibration of initially stressed circular disks....I 258

MOTZ, HANS
Introduction of plasma physics (BR).AM 479

MOULTON, L. J.
Hydraulic speed governor with major governor problems solved (D)....B 11

MOUNT, C. L.
Gas-side corrosion in coal and oil-fired utility units....P 250

MOW, C. C.
Transient response of a rigid spherical inclusion in an elastic medium....AM 637

MOW, V. C.
Surface displacement of a convective elastic half-space under an arbitrarily distributed fast-moving heat source..B 729

MUELLER, J. A.
Grinding....I 518

MUIJDERMAN, E. A.
Static and dynamic characteristics of the spiral-grooved thrust bearing (D).B 555

MULLAN, P. J.
Pressurized fixed-orifice gas journal bearing in plane vibration....B 264

MURDOCK, J. W.
ASME research on high-pressure, high temperature steam and water flow measurement: report of Subcommittee 7 of the ASME Fluid Meters Research Committee....B 1029

MURPHY, C. M.
Action of neutral organic phosphates as EP additives (D)....B 768

N

NABORS, W. M.
Bureau of Mines progress in developing the coal-burning gas-turbine power plant....P 215

NACHBAR, WILLIAM
Effect of finite pressure-pulse duration on the uniform deformation of a long cylindrical shell....AM 331
Preferred mode shape in the linear buckling of circular cylindrical shells under axial compression....AM 793

NACHTIGALL, A. J.
Further investigation of a relation for cumulative fatigue damage in bending....I 25

NAITYS, RAY
Continuity of cylindrical shells subjected to the uniformly distributed longitudinal surface loads (D)....I 123

NAKACHE, F. R.
Efficiency of pumping and power generation in ultrafine electrokinetic systems....AM 675

NAMETKIN, N. S.
Antiwear and antifriction properties of polyorganosiloxanes and their mixtures with hydrocarbons....B 747

NASH, W. A
A direct-stress analysis of orthotropic cantilever plates (D)....AM 714

NEAL, D. M.
Single edge crack in rectangular tensile sheet....AM 708

NELSON, S. E.
Step responses of liquid lines with frequency dependent effects of viscosity....B 504

NEUSEN, K. F.
Maximum flow rate of a single-component, two-phase mixture (D)....HT 141

NEWEY, R. A.
Design and operation of aeration test stand for testing turborotors of high specific speed....B 409

NEWMAN, B. G.
Laminar radial flow between parallel plates (D)....AM 715

NG, CHUNG-WAH
Analysis and test of the screw seal in laminar and turbulent operation (D)....B 162
Frictional characteristics of liquid hydrostatic journal bearings (D)....B 167
Linearized PH stability theory for finite length, self-acting, gas-lubricated, plain journal bearings....B 559
A linearized turbulent-lubrication theory....B 675
Solution of the stability problem for 360 deg self-acting, gas-lubricated bearings (D)....B 211

NICA, AL.
Contributions to the determination of the real clearance in sliding bearings....B 781

NICKEL ALLOYS
Creep-rupture behavior of unnotched and notched nickel-base alloys in air and in vacuum....B 344
Low-cycle fatigue evaluation of Inconel 713C and Waspaloy....B 275

NIEDENFUHR, F. W.
Accurate calculation of stress distributions in multiholed plates....I 331

NIEMANN, G.
Measurement of surface temperatures on gear teeth....B 641

NIEMCZEKSKI, T.
Development of a special high-efficiency turbocharger compressor for application on straight-turbocharged two-cycle engines....P 99

NIMMO, BRUCE
Heat transfer to mercury flowing in-line through a rod bundle....HT 312

NITROGEN
Thermal conductivity of nitrogen and argon....HT 177

NOLE, V. F.
Water analyses and their functions in selecting condenser tube alloys....P 329

NONLINEAR SYSTEMS
A method for the determination of the domain of stability of second-order nonlinear autonomous systems (D)....AM 230
Parametric excitation of a nonlinear system....AM 899
Study of the nonlinearly related modal solutions of coupled nonlinear systems by superposition techniques....AM 359

NOSSOV, M. I.
Antiwear and antifriction properties of polyorganosiloxanes and their mixtures with hydrocarbons....B 747

NOTTAGE, H. B.
System oscillations associated with cavitating inducers....B 917

NOVOTNY, J. L.
Integral analysis of the flow of a heat-generating fluid in the entrance region of a parallel-plate channel....HT 313

NOWINSKI, J. L.
On the propagation of finite disturbances in bars of rubberlike materials....I 523

NOZZLES
Determination of ASME nozzle flow coefficients by thrust measurement....B 1058
An investigation into the performance of two ISA metering nozzles of finite and zero area ratio....B 525
Minimum-weight design of a radial nozzle in a sperical shell....AM 448
Power-transfer characteristics for compressible flow from a stationary nozzle to a detached receiver....B 23

NUMACHI, F.
Effect of surface roughness on cavitation performance of hydrofoils—Report 1....B 495
An experimental study of accelerated cavitation induced by ultrasonics....B 967

O

ŌBA, R.
Effect of surface roughness on cavitation performance of hydrofoils—Report 1....B 495

OGALE, V. A.
Heat-transfer characteristics of the closed thermosyphon (D)....HT 39

OGURA, K.
Push-pull fatigue strength of mild steel at very high frequencies of stress up to 100 kc/s....B 857

OHJI, K.
Push-pull fatigue strength of mild steel at very high frequencies of stress up to 100 kc/s....B 857

OKAMURA, K.
Optimum variations of the initial-state variables in a steepest-ascent method....AM 218

O'KELLY, M. E. J.
Classical normal modes in damped linear dynamic systems....AM 583

OKUSHIMA, K.
Optimum diameter and position of a fly cutter for milling 0.45 C steel, 195 BhN and 0.4 C steel, 167 BhN at light cuts....I 442

OLDENBURGER, RUFUS
Hydraulic speed governor with major governor problems solved....B 1
Optimum nonlinear control for step and pulse disturbances....B 95
Step responses of liquid lines with frequency-dependent effects of viscosity (D)....B 510

ONO, T.
Theory of externally pressurized circular thrust porous gas bearing....B 613

OPPENHEIM, A. K.
Fundamentals of gas dynamics (BR)....AM 479

ORCUTT, F. K.
Investigation of a partial-arc pad bearing in the superlaminar flow regime....B 145, (AC) B 1090

OSTERLE, FLETCHER
Effect of radial momentum flux on flow in the entrance of a porous tube....AM 195
Magnetohydrodynamic squeeze-film bearings....B 805

OVENS, W. G.
Subultimate prestrain and aging in mild steel....B 319

OWCZAREK, J. A. (author)
Fundamentals of gas dynamics (BR)....AM 479

P

PALADINO, A. E.
Experiments on room-temperature Nernst-Ettingshausen refrigerators....I 21

PAN, C. H. T.
A linearized turbulent-lubrication theory....B 675
On the behavior of gas-lubricated journal bearings subjected to sinusoidally time-varying loads (D)....B 599
Stability analysis of gas-lubricated, self-acting, plain, cylindrical, journal bearings of finite length, using Galerkin's method....B 185
Static and dynamic characteristics of the spiral-grooved thrust bearing....B 547

PAN, H. H.
Transverse vibration of an Euler beam carrying a system of heavy bodies....AM 434

PARACHUTES
Pressure distribution and heat transfer for flow over simulated cylindrical parachutes....HT 521

PARKS, V. J.
Photoelastic analysis of plates subjected to restrained shrinkage....AM 504

PARMERTER, R. R.
Unsymmetric buckling of thin shallow spherical shells (D)....AM 466

PASLAY, P. R.
Elasticity in engineering mechanics (BR)....AM 958
Torsional buckling of an extended twisted cylindrical rod under one-sided constraint....AM 519

PASSMORE, R. E.
Kaplan turbine blade-operating mechanism without oil head (D)....P 306

PAUL, B.
A method for checking force calculations in plane and spatial structures....AM 935

PAVLOVSKAYA, N. T.
Effect of oxidation on boundary friction of steel in hydrocarbon media and critical friction duties under which cold and hot seizure (or welding) develop....B 741

PAYTON, R. G.
Dynamic bond stress in a composite structure subjected to a sudden pressure rise....AM 643

PEARSON, A. E.
On the formulation of adaptive optimal control problems....B 125

PEHLKE, R. D.
Initial phases of damage to test specimens in a cavitating venturi....B 453

PENG, Y.
Laminar pipe flow with mass-transfer cooling....HT 252

PENSE, A. W.
Effect of composition and microstructure on the low-cycle fatigue strength of structural steels....B 269

PENTLAND, W.
Improving ultrasonic machining rates—some feasibility studies....I 39

PERKINS, W. R.
Parameter variation problem in state feedback control systems....B 120

PERUGI, A. H.
Investigations of forced-convection liquid-cooled gas-turbine blades (D)....P 70

PETERSON, DAVID C.
Heat transfer to mercury in laminar flow through a tube with constant heat flux....HT 419

PETERSON, M. B.
Lubrication review: a digest of the literature for 1963....B 791

PETERSON, R. E.
Interaction effect of neighboring holes or cavities, with particular reference to pressure vessels and rocket cases....B 879
A set of fatigue-failure criteria (D)....B 342

PETROLEUM-WELL EQUIPMENT
Analysis of the motion of deep-water drill strings—part 1: forced lateral motion....I 137
Analysis of the motion of deep-water drill strings—part 2: forced rolling motion....I 145
Drill-string vibration attenuation and its effect on a surface-oscillator drilling system....I 110

PETRUSEVICH, A. I.
Contact pressures and stresses in one theoretically investigated case....B 1083

PHILLIPS, J. R.
A number-synthesis survey of three-dimensional mechanisms (D)....I 219

PHYSICS
Advances in chemical physics, vol. 5 (BR)....AM 238

PIERPOLINE, M.
Boiler feed pump drives (A)....P 246

PINKUS, OSCAR
A method of solving supersonic laminar boundary-layer separation and its application to wedges and curved surfaces....AM 747

PIPE AND PIPING
An accurate equation for the computation of the friction factor for smooth pipes from the Reynolds number....AM 443
Fracture resistance in line pipe....I 265

PIPE JOINTS
Strength of threaded joints for steel pipe....I 125

PIPELINES
Calculation of surge pressures in pipelines carrying viscous liquids in laminar flow....B 266

PIPING SYSTEMS
Resonance in Bersimis no. 2 piping system....B 925
Resonance in pressurized piping systems....B 960

PISTON GAGES
Generation of precise reference pressures up to 15,750 psi....B 1063

PITTROFF, HANS
Fretting corrosion caused by vibration with rolling bearings stationary....B 713

PLASMA PHYSICS
Introduction to plasma physics (BR)....AM 479

PLASTICITY
Elastic-plastic stress and strain concentration factors at a circular hole in a uniformly stressed infinite plate....AM 710
Yield, flow, and tensile plastic instability....AM 697

PLASTICS
Role of stress concentration in the fatigue of Delrin....I 319

PLATES
Accurate calculation of stress distributions in multiholed plates....I 331
Approximate determination of contact stresses in an infinite plate containing a smooth rigid elliptic insert....AM 437
Bending of circular plates sealing an incompressible liquid....AM 704
Bending of plates of dissimilar materials with cracks (D)....AM 464
Bending of rectangular plates with finite deflections....AM 821
Bending of thick steel plates....B 290
Buckling of circular plate on elastic foundation....I 323
Direct-stress analysis of orthotropic cantilever plates..AM 67, (D) AM 714
Effect of pipe geometry on the efficiency of solid-liquid flow....AM 441
Experimental determination of the elastic behavior of orthotropic plates....I 315
Forced axisymmetric motions of circular elastic plates....AM 893
Fundamental frequency of simply supported rectangular plates with linearly varying thickness....AM 161
Fundamental frequency of simply supported rectangular plates with linearly varying thickness (D)....AM 953
Large deflections of clamped plate by modified Fourier series....AM 943
Natural frequencies of transversely vibrating uniform annual plates..AM 926
On large-deflection theories of plates....AM 695
On the stresses in a semi-infinite strip subjected to a concentrated load...AM 456
On the vibration of a rectangular plate carrying a concentrated mass (D)..AM 476
Photoelastic analysis of plates subjected to restrained shrinkage....AM 504
Random vibrations of plates with large amplitudes....AM 547
Rectangular tensile sheet with symmetric edge cracks (D)....AM 237
Some remarks on the bending of sector plates....AM 214
Stresses and deflections of thick, curved plates....I 303
Stresses in a thick plate with axially symmetric loading....AM 458
Transient compressional waves in an infinite elastic plate, generated by a time-dependent radial body force..AM 706
Vibration frequencies of tapered bars and circular plates (D)....AM 234

PLUNKETT, ROBERT
On the contact problem of thin circular rings....AM 11
Torsion of inhomogeneous elastic prismatic bars....I 391

PHOTOVISCOELASTICITY. *See* VISCOELASTICITY

PODOLSKY, Y. Y.
Effect of oxidation on boundary friction of steel in hydrocarbon media and critical friction duties under which cold and hot seizure (or welding) develop....B 741

POLAKOWSKI, N. H.
Drawing of tubes filled with particulate solids....I 80

POLARISCOPES
A bonded-grid polariscope for photoviscoelasticity....AM 702

POLLOCK, CHARLES
Significant factors in vertical-spindle abrasive machining tests....I 365

PORITSKY, HILLEL
Lubrication phenomena in spur gears: capacity, film thickness variation, and efficiency (D)....B 664
On hydrodynamic instability of gas-lubricated journal bearings (D)....B 587

POROUS BODIES
Deterioration in strength of brittle-state porous bodies....AM 43

POWELL, J. W. (editor)
Gas-lubricated bearings (BR)....AM 718

POWER PLANTS. *See also* SOLAR ENERGY
Radioisotopic power generation (BR)....AM 958

POWER PLANTS, GAS TURBINE
Bureau of Mines progress in developing the coal-burning gas-turbine power plant....P 215

POWER PLANTS, HYDROELECTRIC
Adjustment of hydro-governor characteristics using separate drive for the speed-sensing element....P 13

POWER PLANTS, STEAM
Temperature distribution in the Susquehanna River at Brunner Island Steam Electric Station....P 50

POWER TEST CODES
Philosophy of power test codes and their development....P 105

PRASAD, R.
Hydromagnetic squeeze films between two conducting surfaces....B 818

PRESSURE-CONTROL SYSTEMS
Basic analysis of pressure-control systems used on large steam turbine-generator units....P 389

PRESSURE TECHNOLOGY
Generation of precise reference pressures up to 15,750 psi....B 1063

PRESSURE VESSELS
Interaction effect of neighboring holes or cavities, with particular reference to pressure vessels and rocket cases....B 875
Prestressing a two-layer pressure vessel by plastic deformation....I 97

PRICE, J. E.
Grinding....I 518

PRICE, J. F.
Laminar free convection from a nonisothermal cylinder....HT 237

PROPERTIES OF MATERIALS
Manufacturing properties of materials (BR)....AM 478

PUMPS, BOILER FEED
Boiler feed pump drives....P 237

PUMPS, CENTRIFUGAL
Effects of fluid properties on cavitation in centrifugal pumps....P 309
Radial force on the impeller of centrifugal pumps with volute, semivolute, and fully concentric casings....P 319
Tip-clearance effects in centrifugal pumps....B 932

PUNCHING
Plastic working of metals....I 516

PURDY, K. R.
Resonant pulsating flow and convective heat transfer....HT 507

R

RABINOWICZ, E.
Mechanism of boundary lubrication and the edge effect (D)....B 739

RADIATION. *See also* HEAT TRANSFER, SOLAR ENERGY
Anisotropic, multiple scattered radiation from an arbitrary, cylindrical source in an infinite slab....HT 167
Biangular reflectance of an electric nonconductor as a function of wavelength and surface roughness....HT 283
Diffuse-radiation view factors between two spheres....HT 421
Effect of anisotropic scattering on radiant transport....HT 381
The emissivity of transition metals in the infrared....HT 173
Radiation between concentric cylinders with perforations....HT 318
Radiation exchange in an enclosure with directional wall properties....HT 388
Radiation from a directional source: beam divergence in solar simulators..P 259
Radiant interchange among curved specularly reflecting surfaces—application to cylindrical and conical cavities....HT 299

RADZIMOVSKY, E. I.
Lubrication phenomena in spur gears: capacity, film thickness variation, and efficiency....B 655

RAILROAD MECHANICAL ENGINEERING
Progress in railway mechanical engineering 1963–1964....I 503

RANKIN, A. W.
Boiler feed pump drives (D)....P 246

RATHBUN, F. O.
On the mechanism of contact between metal surfaces—the penetrating depth and the average clearance (D)....B 672

RATONYI, R.
Heat conduction from circular cylinders in rarefied gas....HT 493

RAVILLE, M. E.
Fundamental frequency of simply supported rectangular plates with linearly varying thickness (D)....AM 953

RAZI, R.
Velocity, acceleration, and static-force analyses of spatial linkages....AM 903

REACTORS, NUCLEAR
Uranium-molybdenum alloy for use in a prompt-burst reactor....B 865

REED, F. EVERETT
Natural frequency of a ring subjected to external pressure..AM 431, (AC) AM 956

REESE, J. T.
Prevention of residual oil combustion problems by use of low excess air and magnesium additive....P 229

REFLECTANCE. *See* RADIATION

REFRIGERANTS AND REFRIGERATION
Experiments on room-temperature Nernst-Ettingshausen refrigerators...I 21

REHFIELD, L. W.
Buckling of axially compressed circular cylindrical shells at stresses smaller than the classical critical value....AM 542

REID, WILLIAM T.
Pilot-plant investigation of factors affecting low-temperature corrosion in oil-fired boilers (D)....P 203
Prevention of residual-oil combustion problems by use of low excess air and magnesium additive (D)....P 235

REIMER, ROBERT M.
Determination of ASME nozzle flow coefficients by thrust measurement..B 1058
Performance of small-sized, critical flowmeter assembly (D)....B 1027

REINHARD, E. A.
Numerical techniques for boiling flow stability analyses....HT 311

REISS, EDWARD L.
Bending of rectangular plates with finite deflections....AM 821

REISSNER, ERIC
On the form of variationally derived shell equations (AC)....AM 472

REITZ, C. A.
Books on material processing (BR)....I 521

RHEINGANS, W. J.
Hydraulic-turbine setting criteria (D)..P 299
Philosophy of power test codes and their development (D)....P 113

RHEOLOGY
Elastic liquids (BR)....AM 477

RICE, J. R.
Bending of plates of dissimilar materials with cracks (AC)....AM 464
On the distribution of rises and falls in a continuous random process....B 398
Plane problems of cracks in dissimilar media....AM 418
Starting transients in the response of linear systems to stationary random excitation....AM 200

RICE, JOHN R.
Misalignment torques of hydrodynamic gas-lubricated journal bearings....B 193

RICE, WARREN
Analytical and experimental investigation of multiple-disk turbines....P 29

RICE, W. B.
Some effects of cutting fluids on chip formation in metal cutting....I 36

RICHARDSON, P. D.
A correlation of the influence of sound on heat transfer as measured by Fand and Kaye....HT 314
Transient temperature distribution in a slab subject to thermal radiation (D)....HT 130

RICHMAN, M. H.
Structure and property of materials, vol. 1; thermodynamics of structure, vol. 2 (BR)....AM 718

RICHMOND, O.
Strip-drawing experiments with a sigmoidal die profile....I 425

RIDGWAY, R. S.
Advanced lubricating oil reduces gas-engine maintenance costs....P 169

RIENECKER, F.
Uranium-molybdenum alloy for use in a prompt-burst reactor....B 865

RIGHTMORE, B. G.
Mechanism of boundary lubrication and the edge effect....B 735

RINGS
Natural frequency of a ring subjected to external pressure....AM 431, (D) AM 956
On the buckling of rings subject to impulsive pressures....AM 511
On the contact problem of thin circular rings....AM 11

RIPLING, E. J.
Toughness of warm-worked martensitic steels....B 307

ROBERTSON, J. M. (author)
Hydrodynamics in theory and application (BR)....AM 958

ROBINSON, J. E.
Piston-boss and wrist-pin design....P 412

ROBINSON, M. J.
Initial phases of damage to test specimens in a cavitating venturi....B 453

ROCKETS
Optimization of step rockets by the discrete-maximum principle....I 419
Resonance in liquid-rocket engine systems....B 1011

RODGERS, E. J.
Flow and interference effects of a body of revolution and its stabilizing surfaces when at a small angle of attack....B 941
Tuft-probe errors....B 265

RODS
Elastic wave propagation in rods of arbitrary cross section....AM 290
Longitudinal impact on viscoplastic rods —linear stress-strain rate law (D) ....AM 226
Torsional buckling of an extended twisted cylindrical rod under one-sided constraint....AM 519

ROGERS, T. G.
On the generation of residual stresses in thermoviscoelastic bodies....AM 874

ROLLING. *See also* METAL ROLLING
Experimental investigation of rolling contact....AM 859

ROLLINGER, C. N.
Convectively cooled thermoelements with variable cross-sectional area....HT 259

ROOD, L.
Gas-lubricated stepped thrust bearing—a comprehensive study....B 213

ROSATO, D. V. (author)
Filament winding (BR)....I 522

ROSEN, WALTER
The elastic moduli of fiber-reinforced materials (errata)....AM 219

ROSENFELD, R. L.
Elastic wave propagation in rods of arbitrary cross section....AM 290

ROSENTHAL, PAUL
Improving ultrasonic machine rates—some feasibility studies (D)....I 46

ROSS, E. W., JR.
Membrane natural frequencies for spherical caps....AM 432
Natural frequencies and mode shapes for axisymmetric vibration of deep spherical shells....AM 553

ROTH, BERNARD
On the multiple generation of coupler-curves....I 177

ROTHBART, H. A. (ed)
Mechanical design and systems handbook (BR)....AM 478

ROTORS. *See also* TURBOMACHINERY
Design and operation of aeration test stand for testing turborotors of high specific speed....B 409
Myklestad's method for predicting whirl velocity as a function of rotational velocity for flexible multimass rotor systems....AM 589
Shaft whirl induced by rotor internal damping (D)....AM 233
Stability of an elastic rotor in journal bearings with flexible, damped supports ....AM 911

ROTTA, J. C.
Laminar boundary layers and their separation from curved surfaces (D) ....B 493

ROUBIK, J. R.
Metal-cutting practice....I 513

ROULEAU, W. T.
Calculation of surge pressures in pipelines carrying viscous liquids in laminar flow....B 266
Distortion of short pulses in tapered-tube pulse transformers. Part 1—inviscid liquid....B 465
Distortion of short pulses in tapered-tube pulse transformers. Part 11—viscous liquid....B 471
Effect of radial momentum flux on flow in the entrance of a porous tube...AM 195
Magnetohydrodynamic squeeze-film bearings....B 805
Pressure surges in magnetoviscous flow.B 478

ROWE, G. H.
Stress-rupture of metals under increasing stress....B 875

ROY, D. N.
Laminar heat transfer in the inlet of a uniformly heated tube....HT 425

RUBBERLIKE MATERIALS. *See* ELASTOMERS

RUBIN, M.
Driving torques in a theoretical model of a turbine meter....B 413

RUDQVIST, O.
Kaplan-turbine blade-operating mechanism without oil head (D)....P 304

RUNSTADLER, P. W., JR.
Use of hydrogen bubbles for quantitative determination of time-dependent velocity fields in low-speed water flows ....B 429

RUSSELL, J. K.
Deformation during chip formation....I 53

RUUD, F. O.
Hydraulic-turbine setting criteria....P 295
Instability of a hydraulic turbine with a very long penstock....P 290

S

SABIN, C. M.
An analytical and experimental study of the plane, incompressible, turbulent free-shear layer with arbitrary velocity ratio and pressure gradient....B 421

SACK, L. E.
System oscillations associated with cavitating inducers....B 917

SAGOT, J.
Characteristics of herringbone-grooved gas-lubricated journal bearings (D)..B 576

SAIBEL, E.
On the mechanics of non-Newtonian media (D)....B 693

SALERNO, V. L.
Vibration of an internally damped sandwich plate radiating into a fluid medium....I 379

SALMON, R.
Some effects of cutting fluids on chip formation in metal cutting....I 36

SALZBERG, F.
Mass transfer from a rotating cone in axisymmetric flow....HT 469

SAMUEL, A. E.
Film cooling of an adiabatic flat plate in zero pressure gradient in the presence of a hot mainstream and cold tangential secondary injection....HT 409

SANDERS, J. L., JR.
Effect of a stringer on the stress in a cracked sheet....AM 59

SANDOR, G. N.
Application of dual-number quaternion algebra to the analysis of spatial mechanisms (D)....AM 222
On the existence of a cycloidal Burmester theory in planar kinematics (AC) ....AM 717

SANDROCK, G. D.
High-temperature, cobalt-tungsten alloys for aerospace applications....I 9

SANDWICH MATERIALS. *See* COMPOSITE MATERIALS

SANDWICH SHELLS. *See* SHELLS

SANIN, P. L.
Chemical modification of friction surfaces ....B 771

SARACHIK, P. E.
On the formulation of adaptive optimal-control problems....B 125

SARKAR, A. D. (author)
Foundry core and mould by the carbon dioxide process (BR)....I 522

SAUER, H. J., JR.
The thermal resistance of adhesive bonds....HT 310

SAVAGE, G. H.
Axisymmetric, transverse vibrations of a spinning membrane centrally clamped between collars....I 530

SAVAGE, S. B.
Laminar radial flow between parallel plates (AC)....AM 716

SAVINO, J. M.
An analytical solution of the effect of peripheral wall conduction on laminar forced convection in rectangular channels....HT 59

SAWCUK (author)
Grenztragfahigkeits theorie der platten (BR)....AM 239

SCARLETT, N. A.
Fretting corrosion caused by vibration with rolling bearings stationary (D) ....B 723

SCHAPERY, R. A.
Thermomechanical behavior of viscoelastic media with variable properties subjected to cyclic loading....AM 611

SCHAUB, F. S.
Effect of operational parameters on a large "V" angle compressor engine..P 157

SCHETZ, J. A.
Initial boundary-layer effects on laminar flows with wall slot injection....HT 157
A study of linearized approximations to the boundary-layer equations...AM 757
Two-dimensional turbulent jet mixing ....AM 198

SCHILHANSL, M. J.
Three-dimensional theory of incompressible and inviscid flow through mixed-flow turbomachines....P 361

SCHILLER, ROGER W.
Acceleration axes in spherical kinematics (D)....I 154
Method for determining the instantaneous center of acceleration for a given link....AM 217

SCHMIDT, A. O.
Books on material processing (BR)....I 521

SCHMIDT, F. A. F.
Investigations of forced-convection liquid-cooled gas-turbine blades (D)..P 71

SCHMIDT, ROBERT
Sandwich shells of arbitrary shape (AC)....AM 232

SCHNEIDER, R. W.
Prestressing of two-layer pressure vessel by plastic deformation....I 97

SCHOENHALS, R. J.
Effect of longitudinal oscillations on free convection from vertical surfaces (D) ....AM 717

SCHRAUB, F. A.
Use of hydrogen bubbles for quantitative determination of time-dependent velocity fields in low-speed water flows ....B 429

SCHROCK, V. E.
Prediction of two-phase critical flow rate (D)....HT 57

SCHUERGER, RICHARD G.
Boiler feed pump drives (D)....P 248

SCHULTZ-GRUNOW, F.
Linearized analysis of one-dimensional magnetohydrodynamic flows (BR)..AM 718

SCHWARTZ, F. L.
Correlation of sound generation and heat transfer in boiling....HT 436

SCOTT, C. J.
Experiments on the diffusion thermo effect in a binary boundary layer with injection of various gases....HT 321

SCOTT, R. A.
Transient compressional waves in an infinite elastic plate, generated by a time-dependent radial body force..AM 706

SEALS
Analysis and test of the screw seal in laminar and turbulent operation ....B 153, (D) B 1091

SEBALD, JOSEPH F.
Philosophy of power test codes and their development (D)....P 112

SEBAN, R. A.
On constant property turbulent boundary layers with variable temperature or heat flow at the wall....HT 151
The emissivity of transition metals in the infrared....HT 173

SEDOR, P.
Pilot-plant investigation of factors affecting low-temperature corrosion in oil-fired boilers....P 197

SERVOMECHANISMS
Hot-gas actuators: some limits on the response speed....B 113

SETHNA, P. R.
Vibrations of dynamical systems with quadratic nonlinearities....AM 576

SHAFER, MONTGOMERY R.
Density effect and Reynolds number effect on gas-turbine flowmeters (D) ....B 1052

SHAFFER, BERNARD W.
Generalized plane strain of pressurized orthotropic tubes....I 337

SHAFTS
Deflection of a curved shaft due to torque ....AM 215
Vibration of unsymmetrical rotating shafts....AM 157

SHAHINIAN, P.
Creep-rupture behavior of unnotched and notched nickel-base alloys in air and in vacuum....B 344

SHAHWAN, F. O. F.
Physical model of a 3-constant isotropic elastic material....AM 837

SHANG, JENG C.
Continuity of cylindrical shells subjected to the uniformly distributed longitudinal surface loads....I 115

SHARP, B. B.
Blast-wave propagation in hydraulic conduits (D)....P 439

SHARP, R. E. B.
Kaplan turbine blade-operating mechanism without oil head (D)....P 306

SHAVIT, G.
Film-cooling effectiveness with injection through a porous section....HT 353

SHAW, M. C.
An analysis of the abrasive machining of plane surfaces....I 349

SHEETS. *See* PLATES

SHELLS
Analysis of shells of revolution subjected to symmetrical and nonsymmetrical loads (D)....AM 468
Axisymmetrical creep buckling of clamped shallow spherical shells..AM 323
Bending due to ring loading of a cylindrical shell with an elastic core....AM 99
Buckling of a long fiber-wound cylindrical shell due to stresses caused by windings....AM 81

SHELLS (*continued*)
Buckling of axially compressed circular cylindrical shells at stresses smaller than the classical critical value..AM 542
Continuity of cylindrical shells subjected to the uniformly distributed longitudinal surface loads.....I 115
Dynamic axisymmetric buckling of shallow conical shells subjected to impulsive loads.....AM 129
Effect of boundary conditions on the buckling of conical shells under hydrostatic pressure.....AM 208
Effect of finite pressure-pulse duration on the uniform deformation of a long cylindrical shell.....AM 331
Elastic shell-theory formulation for Bourdon tubes.....B 1072
Experimental and analytical investigation of the film-conductance-coefficient boundary condition for thermal shock of a conical shell.....AM 690
Large deflections of spherical shells under concentrated loads.....AM 936
Longitudinal impact of a semi-infinite, cylindrical, viscoelastic shell.....AM 813
Low buckling stresses of axially compressed circular cylindrical shells of finite length.....AM 533
Membrane natural frequencies for spherical caps.....AM 432
Minimum-weight design of a radial nozzle in a spherical shell.....AM 448
Natural frequencies and mode shapes for axisymmetric vibration of deep spherical shells.....AM 553
Nonlinear model study of the thermal buckling of thin elastic shells.....AM 71
On free and forced vibration of rotationally symmetric layered shells.....AM 941
On nonsymmetric dynamic problems of elastic spherical shells.....AM 525
On the form of variationally derived shell equations (D).....AM 472
On the orthogonality condition of axisymmetric vibration modes for shells of revolution.....AM 447
On the orthogonality condition of axisymmetric vibration modes for shells of revolution (D).....AM 954
On the vibration and stability of finitely deformed shallow spherical shells..AM 116
Plastic tensile instability in pressurized shells of revolution.....AM 449
Preferred mode shape in the linear buckling of circular cylindrical shells under axial compression.....AM 793
Progress in solid mechanics, vol. 4 (BR).....AM 478
Sandwich shells of arbitrary shape (D).....AM 232
Shear and bending of the walls of short cylindrical shells.....I 309
Shells with edge loads of rapid variation—II.....AM 87
Some remarks on spherical shells....AM 121
Symmetric loading of orthotropic shells of revolution.....AM 337
Theory for moderately large deflections of thin sandwich shells.....AM 76
Transient response of a periodically supported cylindrical shell immersed in a fluid medium.....AM 562
Unsymmetric buckling of thin shallow spherical shells (D).....AM 466
Wave propagation in a thin cylindrical shell.....AM 346

SHEPELEVA, E. S.
Chemical modification of friction surfaces.....B 771

SHIBAYAMA, T.
Theoretical solution as a boundary-value problem for externally pressurized porous gas-bearings.....B 622

SHINE, ANDREW J.
Experimental study of flow through moving orifices.....B 1082

SHINKLE, J. H.
Frictional characteristics of liquid hydrostatic journal bearings.....B 163

SHOEMAKER, E. E.
Creep rupture of rotating disks and thin shells of revolution.....AM 607

SHOEMAKER, E. M.
Invariant imbedding applied to eigenvalue problems in mechanics.....AM 47

SHUKLA, J. B.
Hydromagnetic squeeze films between two conducting surfaces.....B 818
Hydromagnetic theory for squeeze films.....B 142

SHUTLER, N. D.
A photographic study of the dynamics and damage capabilities of bubbles collapsing near solid boundaries.....B 511

SIBULKIN, M.
Hydrodynamics in theory and application (BR).....AM 958

SIDEBOTTOM, O. M.
Steady-state biaxial creep (D).....AM 712

SIEBERT, C. A.
Initial phases of damage to test specimens in a cavitating venturi.....B 453

SIEGEL, R.
An analytical solution of the effect of peripheral wall conduction on laminar forced convection in rectangular channels.....HT 59

SIEGMUND, C. W.
Low-excess-air combustion of heavy fuel—high-temperature deposits and corrosion.....P 379

SIEKMANN, H. J. (author)
Machining principles and cost control (BR).....I 522

SIH, G. C.
Bending of plates of dissimilar materials with cracks (AC).....AM 464
Couple-stress effects on stress concentration around a cylindrical inclusion in a field of uniaxial tension (D)...AM 954
Effect of couple-stress on the stress concentration of a circular inclusion.....AM 429
Heat conduction in the infinite medium with lines of discontinuities.....HT 293
Plane problems of cracks in dissimilar media.....AM 418
Stress distribution near internal crack tips for longitudinal shear problems.....AM 51

SILER, L. G.
Correlation of sound generation and heat transfer in boiling.....HT 436

SIMMONDS, J. G.
On the orthogonality condition of axisymmetric vibration modes for shells of revolution (D).....AM 954

SIMONEAU, R. J.
Effect of large temperature gradients on convective heat transfer: the downstream region (D).....HT 73

SKINNER, D. W.
Natural frequencies of transversely vibrating uniform annular plates....AM 926

SLICK, EDWIN A.
Finite deformation of a pressurized membrane strip.....AM 451

SLOSHING. *See also* SPACE AND SPACE VEHICLES
Fluid mechanics of zero-G propellant transfer in spacecraft propulsion systems.....I 1
Longitudinal sloshing of liquid in a flexible hemispherical tank.....AM 665

SLUHAN, C. A.
Metalworking fluids.....I 520

SMALLRIDGE, C. G.
Kaplan-turbine blade-operating mechanism without oil head.....P 301

SMITH, D. M.
Shaft whirl induced by rotor internal damping (D).....AM 233

SMITH, E. M.
Design analysis of multistream Hampson exchanger with paired tubes (D)..HT 208
Primary creep design of thick tubes....B 379

SMITH, F. W.
Rolling-contact lubrication—the application of elastohydrodynamic theory..B 170

SMITH, J.
Bureau of Mines progress in developing the coal-burning gas-turbine power plant.....P 215

SMITH, J. O.
Experimental and analytical investigation of the film-conductance-coefficient boundary condition for thermal shock of a conical shell.....AM 690

SMITH, LEROY H., JR.
Density effect and Reynolds number effect on gas-turbine flowmeters (D)..B 1053
Three-dimensional theory of incompressible and inviscid flow through mixed-flow turbomachines (D).....P 372

SMITH, P. A.
Metalworking fluids.....I 520

SNECK, H. J.
An approximate solution for the infinitely long, gas-lubricated slider bearing..B 1085
The short gas-lubricated journal bearing.....B 1087
Theory of externally pressurized circular thrust porous gas bearing (D).....B 620

SNEDDON, L. N. (ed)
Progress in solid mechanics, vol. 4 (BR).....AM 478

SNOW, E. W.
Protecting turbomachinery from self-excited rotor whirl (D).....P 344

SOLAR ENERGY
Performance and evaluation of concentrating solar collectors for power generation.....P 1
Review of recent Air Force research on selective solar absorbers.....P 277
Solar energy collection with evacuated tubes.....P 270
Solar thermionic generators for space power.....P 281

SOLER, A. I.
On the solution to transient coupled thermoelastic problems by perturbation techniques.....AM 389

SOLID-LIQUID MIXTURES
Effect of pipe geometry on the efficiency of solid-liquid flow.....AM 440

SOMERSCALES, E.
Heat transfer by natural convection in liquids confined by two parallel plates which are inclined at various angles with respect to the horizontal.....HT 77

SONNERMANN, G.
Note on the transient axisymmetric thermoelastic problem for the solid sphere (D).....AM 226

SOONG, T. T.
On *a priori* statistics in minimum-variance estimation problems.....B 109

SOUNDRANAYAGAM, S.
An investigation into the performance of two ISA metering nozzles of finite and zero area ratio.....B 525

SPACE AND SPACE VEHICLES. *See also* ROCKETS
Experimental study of flow through moving orifices.....B 1082
Fluid mechanics of zero-G propellant transfer in spacecraft propulsion systems.....I 1
High-temperature, cobalt-tungsten alloys for aerospace applications.....I 9
Investigation of optimal control with a minimum-fuel-consumption criterion for a fourth-order plant with two control inputs; synthesis of an efficient suboptimal control.....B 39
Note on an orthogonality relation in a problem on a rotating string.....AM 442
A note on the instability of a rotating string.....AM 939
Orbital dynamics of space vehicles (BR).....AM 238
Radiant heat transfer to earth satellites.....HT 369
Radiation from a directional source: beam divergence in solar simulators..P 259
Stress and shape analysis of a paraglider wing.....AM 771

SPALDING, D. B. (author)
Convective mass transfer (BR).....AM 238

SPARROW, E. M.
Biangular reflectance of an electric nonconductor as a function of wavelength and surface roughness.....HT 283
Effects of roughness of metal surfaces on angular distribution of monochromatic reflected radiation (D).....HT 93
Experiments on the diffusion thermo effect in a binary boundary layer with injection of various gases.....HT 321
Generalized variational method for calculating radiant interchange between surfaces.....HT 103
Heat transfer for flow longitudinal to a cylinder with surface mass transfer.....HT 317
Heat transfer to laminar flow in tapered passages.....AM 684
Inverse problem in transient heat conduction (AC).....AM 473
Laminar heat transfer and pressure drop in isosceles triangular, right triangular, and circular-sector ducts.....HT 426
Radiant interchange among curved specularly reflecting surfaces—application to cylindrical and conical cavities..HT 299
Slip flow in rectangular and annular ducts.....B 1018

SPENGOS, ARIS C.
Experimental investigation of rolling contact.....AM 859

SPEYER, E.
Solar-energy collection with evacuated tubes.....P 270

SPHERES
A contact stress problem for a rigid smooth sphere in an extended elastic solid.....AM 651
Note on the transient axisymmetric thermoelastic problem for the solid sphere (D).....AM 226
On the oscillation at the final stages of rolling of a hard sphere on an elastic base.....B 708
Stress distribution in anisotropic viscoelastic hollow sphere.....AM 31

SPILLERS, WILLIAM R.
Wave propagation in a thin cylindrical shell.....AM 346

SPRAKER, W. A.
Effects of fluid properties on cavitation in centrifugal pumps.....P 309

SPRINGER, G. S.
Heat conduction from circular cylinders in rarefied gases.....HT 493

SPROULE, R. S.
Kaplan-turbine blade-operating mechanism without oil head.....P 301

ST. JOHN, A. D.
A numerical solution for the pressure, temperature, and film thickness between two infinitely long, lubricated rolling and sliding cylinders, under heavy loads (D).....B 706

STABILITY. *See also* AUTOMATIC CONTROL
On the destabilizing effect of damping in nonconservative elastic systems.....AM 592

STAHLER, ALFRED F.
Slip factor of a radial-bladed centrifugal compressor.....P 181

STALKER, K. W.
Hydrodynamic forming (D).....I 109

STARKMAN, E. S.
Development and application of nomographs for an analysis of compression-ignition engines (D).....P 155

STARR, J. B.
Heat transfer to laminar flow in tapered passages.....AM 684

STATISTICS
On *a priori* statistics in minimum-variance estimation problems.....B 109
On the distribution of rises and falls in a continuous random process.....B 398
Sixth International Conference on the properties of steam—a report.....P 87
Sixth International Conference on the properties of steam—release.....P 93

STEAM GENERATORS. *See* BOILERS

STEEL
Creep and rupture behavior of low-alloy steels in high-pressure hydrogen environment.....B 313
Effect of composition and microstructure on the low-cycle fatigue strength of structural steels.....B 269
Effect of quench aging and cyclic-strain aging on low-carbon steel.....B 351
Effects of repeated loading and moisture on the fracture toughness of SAE 4340 steel.....B 363
High-temperature rupture, fatigue, and damping properties of AISI Designation 616 (type 422 stainless) steel.....B 325
Subultimate prestrain and aging in mild steel.....B 319
Toughness of warm-worked martensitic steels.....B 307
Uniaxial creep-rupture behavior of low-alloy steel under variable loading conditions.....B 374

STEELE, C. R.
Shells with edge loads of rapid variation—II.....AM 87
Symmetric loading of orthotropic shells of revolution.....AM 337

STEIN, RALPH P.
Radiation between concentric cylinders with perforations.....HT 316

STEMNISKI, J. R.
Action of neutral organic phosphates as EP additives (D).....B 769

STEPANOFF, A. J.
Radial force on the impeller of centrifugal pumps with volute, semivolute, and fully concentric casings (D).....P 322

STERNLICHT, B.
A numerical solution for the pressure, temperature, and film thickness between two infinitely long, lubricated rolling and sliding cylinders, under heavy loads.....B 695

STEVERDING, B.
Ablation of glasses containing a surface-active compound.....AM 459

STEWART, I. L.
An analysis of the abrasive machining of plane surfaces (D).....I 357

STOUT, R. D.
Effect of composition and microstructure on the low cycle fatigue strength of structural steels.....B 269

STOWELL, E. Z.
Steady-state biaxial creep....AM 37, ...(AC) AM 714

STREETER, V. L.
Resonance in Bersimis no. 2 piping system.....B 925
Resonance in liquid-rocket engine systems.....B 1011

STRESSES AND STRAINS. *See also* BUCKLING, CREEP OF MATERIALS, DEFORMATION, ELASTICITY, PLASTICITY, RINGS, SHELLS, THERMOELASTICITY
Accurate calculation of stress distributions in multiholed plates.....I 331
Approximate determination of contact stresses in an infinite plate containing a smooth rigid elliptic insert.....AM 437
An approximate solution for the circumferential stresses in a stretched plate caused by a suddenly punched hole.....AM 949
Bending of plates of dissimilar materials with cracks (D).....AM 464
Closed forms for the stresses in a class of orthotropic wedges.....AM 26

STRESSES AND STRAINS (*continued*)
A contact stress problem for a rigid smooth sphere in an extended elastic solid.....AM 651
Couple-stress effects on stress concentration around a cylindrical inclusion in a field of uniaxial tension..AM 424, ...(D) AM 954
A crack between dissimilar media...AM 400
Cracks under longitudinal shear.....AM 197
Direct-stress analysis of orthotropic cantilever plates...AM 67, (D) AM 714
Dynamic stresses in a finite elastic body of revolution due to longitudinal impact.....AM 699
Effect of a stringer on the stress in a cracked sheet.....AM 59
Effect of couple-stresses on the stress concentration of a circular inclusion.....AM 429
Effect of shear distortion in sandwich cylinders subjected to nonuniform pressure.....AM 694
An elastic-plastic curved-bar analysis..B 894
Experimental methods for dynamic stress analysis in viscoelastic materials...AM 598
Experimental stress analysis and motion measurement (BR).....AM 238
An experimental study of plane plastic straining of notched bars.....AM 493
Generalized plane strain of pressurized orthotropic tubes.....I 337
Interaction effect of neighboring holes or cavities, with particular reference to pressure vessels and rocket cases..B 879
Longitudinal impact on viscoplastic rods—linear stress-strain rate law (D).....AM 226
On the generation of residual stresses in thermoviscoelastic bodies.....AM 874
On the stresses in a semi-infinite strip subjected to a concentrated load...AM 456
Plane problems of cracks in dissimilar media.....AM 418
Pressure peaks at the ends of plane-strain rigid die contacts (elastic)..AM 462
Rectangular tensile sheet with symmetric edge cracks (D).....AM 237
Stress concentration at semicircular notch.....AM 938
Stress distribution in anisotropic viscoelastic hollow sphere.....AM 31
Stress distribution in bonded dissimilar materials containing circular or ring-shaped cavities.....AM 829
Stress distribution in bonded dissimilar materials with cracks.....AM 403
Stress distribution near internal crack tips for longitudinal shear problems.....AM 51
Stress interference in three-dimensional torsion.....AM 21
Stresses and deflections of thick, curved plates.....I 303
Subultimate prestrain and aging in mild steel.....B 319

STRIMBECK, D. C.
Bureau of Mines progress in developing the coal-burning gas-turbine power plant.....P 215

STRIPS. *See* PLATES

STROUD, C. W.
Ablation of reinforced plastic for heat protection (D).....AM 951

STRUB, R. A.
Compressor surge in gas turbines and blast-furnace compressor installations.....P 193

STRUCTURES
High-temperature structures and materials (BR).....I 521
A method for checking force calculations in plane and spatial structures.....AM 935
On a simplified method for solving impulsively loaded structures of rate-sensitive materials.....AM 489

STUART, HERBERT W.
Philosophy of power test codes and their development (D).....P 113

STUIVER, W.
On the buckling of rings subject to impulsive pressures.....AM 511

SUKIENNIK, P.
On the oscillation at the final stages of rolling of a hard sphere on an elastic base.....B 708

SULLIVAN, A. M.
Biaxial brittle fracture tests (D).....B 298

SUNDERLAND, J. EDWARD
Transient temperature distribution in a slab subject to thermal radiation..HT 117

SUPERCHARGERS
Development of a special high-efficiency turbocharger compressor for application on straight-turbocharged two-cycle engines.....P 99
Turbocharged two-stroke-cycle gas engines.....P 421

SUTER, P.
Compressor surge in gas turbines and blast-furnace compressor installations.....P 193

SWANN, R. T.
Ablation of reinforced plastic for heat protection (D).....AM 951

SWENSON, H. S.
Heat transfer to supercritical water in smooth-bore tubes.....HT 477

SYMONDS, P. S.
Longitudinal impact on viscoplastic rods—linear stress-strain rate law (AC).....AM 227

SZÉGO, G. P.
A method for the determination of the domain of stability of second-order nonlinear autonomous systems (D).....AM 231

T

TABOR, D.
On the oscillation at the final stages of rolling of a hard sphere on an elastic base (D).....B 711

TABOR, H.
Solar-energy collection with evacuated tubes (D).....P 276

TAKEYAMA, H.
Rheological aspect of tool wear in machining graphite.....I 359

TAKIMOTO, AKIO
Interaction effect of neighboring holes or cavities, with particular reference to pressure vessels and rocket cases (D).....B 885

TAMAI, Y.
Mechanism of boundary lubrication and the edge effect.....B 735

TANG, T. M.
Dynamics of synchronous-processing turborotors with particular reference to balancing. Part 1—theoretical foundations (AC).....AM 226

TANGORRA, G.
Pressures and flow rates in extruders with axially variable geometry....AM 277

RANKS
On the stability of the oscillations of a simple surge tank.....AM 945

TANNER, R. I.
Gas-lubricated bearings (BR).....AM 718
Study of anisothermal short journal bearings with non-Newtonian lubricants.....AM 781

TAO, D. C.
A four-bar linkage adjustable for variable straight-line motions.....I 287

TARASOV, L. P.
Grinding.....I 518

TASKETT, BEVERLY
Study of the nonlinearly related modal solutions of coupled nonlinear systems by superposition techniques.....AM 359

TAYLOR, C. FAYETTE
Development and application of nomographs for an analysis of compression-ignition engines (D).....P 155

TECHO, ROBERT
An accurate equation for the computation of the friction factor for smooth pipes from the Reynolds number.....AM 443

TESAR, D.
Analysis of approximate four-bar straight-line mechanisms.....I 291
A four-bar linkage adjustable for variable straight-line motions (D).....I 287
Higher path-curvature analysis in plane kinematics (D).....I 190
An iterative method for the displacement analysis of spatial mechanisms (D).....AM 220

TESTA, R. B.
Longitudinal impact of a semi-infinite, cylindrical, viscoelastic shell.....AM 813

TESTING
Apparatus for measuring thrust produced on rotating body immersed in a liquid.....AM 201, (D) AM 952
Experimental stress analysis and motion measurement (BR).....AM 238

TEWFIK, O. E.
Experiments on the diffusion thermo effect in a binary boundary layer with injection of various gases (D).....HT 327

THERMAL FATIGUE. *See* METAL FATIGUE

THERMAL STRESSES
Experimental and analytical investigation of the film-conductance-coefficient boundary condition for thermal shock of a conical shell.....AM 690
Nonlinear model study of the thermal buckling of thin elastic shells.....AM 71
Stress waves generated by heat addition in an elastic solid.....AM 143
Thermal-stress concentrations in a notched half-plane.....AM 192
Thermal stresses in anisotropic hollow cylinders.....B 391

THERMIONIC GENERATORS
Solar thermionic generators for space power....P 281

THERMODYNAMICS
Application of irreversible thermodynamics in finite viscoelastic deformations....AM 623
A logical error in the single axiom for classical thermodynamics....AM 703
Progress in solid mechanics, vol. 4 (BR)....AM 478
Structure and property of materials, vol. 1; thermodynamics of structures, vol. 2 (BR)....AM 718

THERMOELASTICITY
Note on the transient axisymmetric thermoelastic problem for the solid sphere (D)....AM 226
On a variational theorem in coupled thermoelasticity....AM 943
On the generation of residual stresses in thermoviscoelastic bodies....AM 874
On the solution to transient coupled thermoelastic problems by perturbation techniques....AM 389
Plane-contact problem of thermoelasticity during quasi-stationary heat generation on the contact surfaces....B 811
Surface displacement of a convective elastic half-space under an arbitrarily distributed fast-moving heat source..B 729
Thermoelasticity when the material coupling parameter equals unity..AM 378

THERMOSYPHONS
Condensation in a variable acceleration field and the condensing thermosyphon....P 355
Heat-transfer characteristics of the closed thermosyphon....HT 30

THOMAS, J. A.
Kaplan-turbine blade-operating mechanism without oil head (D)....P 307

THOMMEN, H. U.
Nonequilibrium flow of dilute reacting gases....AM 169

THOMSEN, E. G.
A new analysis of the forces in orthogonal metal cutting....I 480

THRUST MEASUREMENT
Determination of ASME nozzle flow coefficients by thrust measurement..B 1058

THUERING, G. L.
Performance of tungsten carbide, titanium carbide, and oxide tools in finish turning of C-30 gray iron....I 344

THURSTON, G. A.
Effect of boundary conditions on the buckling of conical shells under hydrostatic pressure....AM 208
Newton's method applied to problems in nonlinear mechanics....AM 383

TICE, E. A.
Corrosion of feedwater heater tubing alloys in peaking service....P 324

TICKNER, R. R.
An accurate equation for the computation of the friction factor for smooth pipes from the Reynolds number....AM 443

TIEN, C. L.
Laminar free convection from a nonisothermal cylinder (D)....HT 242
Measured temperature profiles within the superheated boundary layer above a horizontal surface in saturated nucleate pool boiling of water (D)...HT 340
A theoretical analysis of laminar forced flow and heat transfer about a rotating cone....HT 184

TING, THOMAS C. T.
Large deformation of a rigid, ideally plastic cantilever beam....AM 295
Longitudinal impact on viscoplastic rods—linear stress-strain rate law (AC)....AM 227

TINKENS, T. E.
Friction and wear....B 791

TIPEI, N.
Contributions to the determination of the real clearance in sliding bearings (D)....B 784
On the mechanics of non-Newtonian media....B 689

TIROSH, J.
Analysis of metal extrusion (D)....I 69

TORDION, GEORGE V.
On polygonal action in roller-chain drives....I 243

TORRANCE, K. E.
Biangular reflectance of an electric nonconductor as a function of wavelength and surface roughness....HT 283
Effects of roughness of metal surfaces on angular distribution of monochromatic reflected radiation (D)....HT 93

TORSION
Torsion of inhomogeneous elastic prismatic bars....I 391

TRACY, A. W.
Water analyses and their functions in selecting condenser tube alloys....P 329

TRAILL, J. J.
Philosophy of power test codes and their development (D)....P 114

TRAMPOSCH, H.
Relaxation of internal forces in a wound reel of magnetic tape....AM 865

TRIBUS, MYRON
A logical error in the single axiom for classical thermodynamics....AM 703

TRIGGER, K. J.
Books on material processing (BR)....I 521

TRIPP, J. H.
On the mechanism of contact between metal surfaces—the penetrating depth and the average clearance (D)....B 673

TROIANO, A. R.
A behavioral model for the fracture of surface-hardened components....B 871

TRUMPLER, P. R.
Dynamics of synchronous-processing turborotors with particular reference to balancing. Part 1—theoretical foundations (AC)....AM 226

TSAI, SHING-HWA
Heat transfer to a nonisothermal rotating disk with a turbulent boundary layer....HT 362

TSAI, STEPHEN W.
Experimental determination of the elastic behavior or orthotropic plates....I 315

TSO, W. K.
Parametric excitation of a nonlinear system....AM 899

TSUJI, I. J.
A theoretical analysis of laminar forced flow and heat transfer about a rotating cone....HT 184

TSUKIZOE, TADASU
On the mechanism of contact between metal surfaces—the penetrating depth and the average clearance....B 666

TSYLEV, L. M. (author)
The smelting of ferroalloys in the blast furnace using oxygen-enriched blast (BR)....I 522

TUBA, I. S.
An elastic-plastic curved-bar analysis....B 894
Elastic-plastic stress and strain concentration factors at a circular hole in a uniformly stressed infinite plate...AM 710
Fuels for advanced power-generation systems....P 125
Interaction effect of neighboring holes or cavities, with particular reference to pressure vessels and rocket cases (D).B 884

TUBES AND TUBING. *See also* STRESSES AND STRAINS
Combined bending and compression of a pressurized circular cylindrical membrane column....I 372
Drawing of tubes filled with particulate solids....I 80
Plastic working of metal....I 516
Primary creep design of thick tubes...B 379
Tube sinking and expanding....I 71

TUBE SHEETS
An analysis of axially symmetric coupled tube sheets (D)....AM 473

TULER, F. R.
Low-cycle fatigue evaluation of Inconel 713C and Waspaloy....B 275

TUNGSTEN ALLOYS
High-temperature, cobalt-tungsten alloys for aerospace applications....I 9

TURBINES, HYDRAULIC
Hydraulic-turbine setting criteria....P 295
Instability of a hydraulic turbine with a very long penstock....P 290
Kaplan-turbine blade-operating mechanism without oil head....P 301

TURBINES, MULTIPLE DISK
Analytical and experimental investigation of multiple-disk turbines....P 29

TURBOCHARGERS. *See* SUPERCHARGERS

TURBOMACHINERY
Design and operation of aeration test stand for testing turborotors of high specific speed....B 409
Driving torques in a theoretical model of a turbine meter....B 413
Dynamics of synchronous-processing turborotors with particular reference to balancing. Part 1—theoretical foundations (D)....AM 223

TURBOMACHINERY
An investigation into unsteady blade forces in turbomachines....P 345
Low-cycle fatigue life of turbine-generator retaining rings determined by stress-cycling tests....B 245
Protecting turbomachinery from self-excited rotor whirl....P 333
Three-dimensional theory of incompressible and inviscid flow through mixed-flow turbomachines....P 361

TYLER, J. C.
Thermal effects in contact fatigue under oscillatory normal load....B 177

U

UICKER, J. J., JR.
An iterative method for the displacement analysis of spatial mechanisms (AC)....AM 221
Velocity, acceleration, and static-force analyses of spatial linkages....AM 903

ULTRASONIC MACHINING. *See* METAL CUTTING

ULTRASONICS
An experimental study of accelerated cavitation induced by ultrasonics....B 967

UMAN, MARTIN A. (author)
Introduction to plasma physics (BR)....AM 479

UMUR, A.
Mechanism of dropwise condensation....HT 275

UNDERWATER RESEARCH AND TECHNOLOGY
Fluid-metering device for measuring dive rate of a vehicle traveling in water....B 58

V

VACUUM. *See* HEAT TRANSFER

VANDERBOEGH, BRUCE L.
Philosophy of power test codes and their development (D)....P 112

VAN DER SLUYS, W. A.
Effects of repeated loading and moisture on the fracture toughness of SAE 4340 steel....B 363

VAN DER WERF, P.
Development and application of nomographs for an analysis of compression-ignition engines....P 148

VARIABLE-SPEED DRIVES. *See* DRIVES

VAUGHAN, D. R.
Hot-gas actuators: some limits on the response speed....B 113

VELKOFF, H. R.
Condensation of vapor on a vertical plate with a transverse electrostatic field....HT 197

VIBRATION
Axisymmetric, transverse vibrations of a spinning membrane centrally clamped between collars....I 530
Classical normal modes in damped linear dynamic systems....AM 583
Elimination of destructive, self-excited vibrations in large, gas and oil-fired utility units....P 223
Free vibration of initially stressed circular disks....I 258
Fundamental frequency of simply supported rectangular plates with linearly varying thickness....AM 161, (D) AM 953
Invariant imbedding applied to eigenvalue problems in mechanics....AM 47
Large-amplitude free vibrations of a beam....AM 887
Membrane natural frequencies for spherical caps....AM 432
Natural frequencies and mode shapes for axisymmetric vibration of deep spherical shells....AM 553
Natural frequencies of transversely vibrating uniform annular plates..AM 926
Natural frequency of a ring subjected to external pressure....AM 431, (D) AM 956
On free and forced vibration of rotationally symmetric layered shells..AM 941
On the free vibration of a beam on a nonlinear elastic foundation....AM 445
On the orthogonality condition of axisymmetric vibration modes for shells of revolution....AM 447, (D) AM 954
On the vibration and stability of finitely deformed shallow spherical shells..AM 116
On the vibration of a rectangular plate carrying a concentrated mass (D)....AM 476
Parametric excitation of a nonlinear system....AM 899
Random vibration in mechanical systems (BR)....I 96
Random vibrations of plates with large amplitudes....AM 547
Starting transients in the response of linear systems to stationary random excitation....AM 200
Theory of vibratory bending for elastic and viscoelastic layered finite-length beams....AM 881
Transient compressional waves in an infinite elastic plate, generated by a time-dependent radial body force..AM 706
Transient response of a periodically supported cylindrical shell immersed in a fluid medium....AM 562
Transverse vibration of an Euler beam carrying a system of heavy bodies..AM 434
Vectorial derivation of the equations for small vibrations of twisted curved beams....AM 439

VIBRATION (*continued*)
Vibration frequencies for uniform beams with central masses....AM 711
Vibration frequencies of tapered bars and circular plates (D)....AM 234
Vibration frequencies of truncated-cone and wedge beams....AM 932
Vibration of an internally damped sandwich plate radiating into a fluid medium....I 379
Vibration of unsymmetrical rotating shafts....AM 157
Vibrations of dynamical systems with quadratic nonlinearities....AM 576

VIDOSIC, J. P.
Analysis of approximate four-bar straight-line mechanisms....I 291

VILLFORTH, F. J., JR.
Automotive lubricants....B 801

VINES, R. G.
Thermal conductivity of nitrogen and argon....HT 177

VINOGRADOV, G. V.
Antiwear and antifriction properties of polyorganosiloxanes and their mixtures with hydrocarbons....B 747
Effect of oxidation on boundary friction of steel in hydrocarbon media and critical friction duties under which cold and hot seizure (or welding) develop....B 741

VISCOELASTICITY. *See also* STRESSES AND STRAINS
Application of irreversible thermodynamics in finite viscoelastic deformations....AM 623
A bonded-grid polariscope for photoviscoelasticity....AM 702
Experimental methods for dynamic stress analysis in viscoelastic materials....AM 598
Mechanics of incremental deformation (BR)....AM 957
On the generation of residual stresses in thermoviscoelastic bodies....AM 874
Thermomechanical behavior of viscoelastic media with variable properties subjected to cyclic loading....AM 611
Transient response in a viscoelastic material with temperature-dependent properties and thermomechanical coupling....AM 620
Viscoelastic behavior of heterogeneous media....AM 630

VISCOPLASTICITY
Longitudinal impact on viscoplastic rods —linear stress-strain rate law (D)....AM 226

VISKANTA, R.
Heat transfer by conduction and radiation in absorbing and scattering materials....HT 143
Transient cooling of a spherical mass of high-temperature gas by thermal radiation....AM 740

VITOVEC, F. H.
Creep and rupture behavior of low-alloy steels in high-pressure hydrogen environment....B 313

VOGEL, S. M.
Natural frequencies of transversely vibrating uniform annular p'ates....AM 926

VOHR, J. H.
Characteristics of herringbone-grooved gas-lubricated journal bearings....B 568
Frictional characteristics of liquid hydrostatic journal bearings (D)....B 168

VON DOENHOFF, C.
An analysis of the abrasive machining of plane surfaces (D)....I 357

VON TURKOVICH, B. F.
Books on material processing (BR)....I 521

VORTEXES
Significance of the vortex breakdown phenomenon....B 518

W

WAGNER, HANS
Large-amplitude free vibrations of a beam....AM 887

WAH, THEIN
On the vibration of a rectangular plate carrying a concentrated mass (D)....AM 476

WAHL, A. M.
Mechanical design and systems handbook (BR)....AM 478

WAID, R. W.
Effect of surface roughness on cavitation performance of hydrofoils—report 1 (D)....B 502

WALDRON, K. J.
A number-synthesis survey of three-dimensional mechanisms (D)....I 219

WALKER, J. A.
An integral method of Liapunov function generation for nonlinear autonomous systems....AM 569

WALOWIT, J. A.
A numerical solution for the pressure, temperature, and film thickness between two infinitely long, lubricated rolling and sliding cylinders, under heavy loads (D)....B 704

WALSH, R. A.
Fixed tube-sheet heat exchangers (AC)....AM 236

WALTER, WOLFGANG (author)
Differential- und integral-ungleichungen (BR)....AM 477

WANG, CHIU-SEN
Optimization of step rockets by the discrete-maximum principle....I 419

WANG, D. P.
General formulation of a perturbation theory for unsteady cavity flows....B 1006

WANG, I-CHIH
A contact-stress problem for a rigid smooth sphere in an extended elastic solid....AM 651

WANOUS, D. J.
Heat transfer for flow longitudinal to a cylinder with surface mass transfer....HT 317

WARREN, W. E.
Note on the transient axisymmetric thermoelastic problem for the solid sphere (AC)....AM 226
Thermal-stress concentrations in a notched half-plane....AM 192

WATER
A reappraisal of the critical constants for water....HT 266
Water analyses and their functions in selecting condenser tube alloys....P 329

WATTS, R. G.
Radiant heat transfer to earth satellites....HT 369

WAVE MECHANICS. *See also* VIBRATION
Blast-wave propagation in hydraulic conduits....P 19, (D) P 439
Elastic wave propagation in rods of arbitrary cross section....AM 290
Finite wave propagation in deformable tubes....AM 207
A note on wave propagation in a nonhomogeneous bar....AM 947
Stress waves generated by heat addition in an elastic solid....AM 143
Traveling force on a Timoshenko beam....AM 351
Two-dimensional wave propagation in realistic viscoelastic materials....AM 303
Wave propagation in a thin cylindrical shell....AM 346
Wave propagation in an elastic nonhomogeneous bar of finite length...AM 135

WAY, S.
Fuels for advanced power-generation systems....P 125

WAYMAN, C. M. (author)
High-temperature structures and materials (BR)....I 521

WEAR
Calculation of wear rate....B 785
Friction and wear....B 791

WEDGES
Closed forms for the stresses in a class of orthotropic wedges....AM 26

WEERTMAN, J. R. (author)
High-temperature structures and materials (BR)....I 521

WEIGHTS AND MEASURES
A reappraisal of the critical constants for water....HT 266

WEINER, R. S.
Forced axisymmetric motions of circular elastic plates....AM 893

WEISS, VOLKER
Interaction effect of neighboring holes or cavities, with particular reference to pressure vessels and rocket cases (D)....B 885

WEITSMAN, YECHIEL
Couple-stress effects on stress concentration around a cylindrical inclusion in a field of uniaxial tension....AM 424, (AC) AM 955

WELLING, JOHN R.
Free-convection heat transfer coefficients from rectangular vertical fins....HT 439

WELNA, H.
Tip-clearance effects in centrifugal pumps....B 932

WEMPNER, G. A.
Theory for moderately large deflections of thin sandwich shells....AM 76

WEN, ROBERT K.
Dynamic response of beams with lumped parameters....AM 453

WENG, CHENG-KUO
Power-transfer characteristics for compressible flow from a stationary nozzle to a detached receiver....B 23

WENG, TU-LUNG
Thermal stresses in anisotropic hollow cylinders....B 391

WENNBERG, J. L.
Books on material processing (BR)....I 521

WERNICK, R. J.
Solution of the stability problem for 360 deg self-acting, gas-lubricated bearings (D)....B 211

WEST, R. G.
An investigation into the performance of two ISA metering nozzles of finite and zero area ratio (D)....B 531

WESTMANN, R. A.
Asymmetric mixed boundary-value problems of the elastic half-space....AM 411

WHIRL. *See* ROTORS

WHITTIER, J. S.
A note on wave propagation in a nonhomogeneous bar....AM 947

WIEDERSUM, G. C.
Corrosion of feedwater heater tubing alloys in peaking service....P 324
Gas-side corrosion in coal and oil-fired utility units....P 250

WILCOCK, D. F.
Contributions to the determination of the real clearance in sliding bearings (D)....B 784
Design and performance of gas-pressurized, spherical, space-simulator bearings....B 604

WILDMANN, M.
Effect of external pressurization on self-acting foil bearings....B 631
Gas-lubricated stepped thrust bearing—a comprehensive study....B 213

WILHOIT, J. C., JR.
Analysis of the motion of deep-water drill strings—part 1: forced lateral motion....I 137
Analysis of the motion of deep-water drill strings—part 2: forced rolling motion....I 145

WILKINS, J. E., JR.
Frictional pressure drop in triangular ducts....HT 427

WILKINSON, J. P.
On nonsymmetric dynamic problems of elastic spherical shells....AM 525

WILLIAMS, M. L.
Bending of plates of dissimilar materials with cracks (D)....AM 464

WILLIAMS, W. O.
Torsional buckling of an extended twisted cylindrical rod under one-sided constraint....AM 319

WILSON, D. G.
Slip factor of a radial-bladed centrifugal compressor (D)....P 191

WILSON, F. W. (editor)
Die design handbook (BR)....I 522

WILSON, G. F.
Books on material processing (BR)....I 521
Study of the radiometric method and use of the liquid scintillation technique for tool-wear determination...I 47

WILSON, G. R.
Action of neutral organic phosphates as EP additives (D)....B 769

WILSON, J. T., III
Analytical kinematic synthesis by finite displacements....I 161

WILSON, PAUL E.
Finite deformation of a pressurized membrane strip....AM 451
On nonlinear bending of a plate strip....I 406

WIND TUNNELS
Transient heat transfer through a thin circular pipe due to unsteady flow in the pipe....HT 513

WISE, W. W.
An analysis of axially symmetric coupled tube sheets (D)....AM 473

WOLF, L. J.
Role of stress concentration in the fatigue of Delrin....I 319

WOJCIK, C. K.
Synthesis of four-bar-linkage function generators by means of equations of motion....I 170

WOJTOWICZ, W. J.
Metalworking lubricants....B 800

WOLOSEWICK, R. M.
Transient response in a viscoelastic material with temperature-dependent properties and thermomechanical coupling....AM 620

WONHAM, W. M.
On a problem of Letov in optimal control....B 81

WOOD, G. M.
Tip-clearance effects in centrifugal pumps....B 932

WOOLDRIDGE, C. B.
Free-convection heat transfer coefficients from rectangular vertical fins....HT 439

WRIGHT, A.
Effect of external pressurization on self-acting foil bearings....B 631
WRIGHT, C. P.
Some design techniques for fluid-jet amplifiers....B 67
WU, CHIEN-HENG
On the contact problem of thin circular rings....AM 11
WU, TAI TE
On the parametrization of the elastic moduli of two-phase materials....AM 211, (AC) AM 954
WU, T YAO-TSU
General formulation of a perturbation theory for unsteady cavity flows....B 1006
WULFF, JOHN (editor)
Structure and property of materials, vol. 1; thermodynamics of structure, vol. 2 (BR)....AM 718
WYLIE, E. B.
Pressure transients in viscous fluid systems....B 1089
Reflection of waterhammer pressure waves from minor losses (D)....B 451
Resonance in Bersimis no. 2 piping system....B 925
Resonance in pressurized piping systems....B 960

Y

YABE, H.
Theoretical solution as a boundary-value problem for externally pressurized porous gas bearings....B 622
Theory of externally pressurized circular thrust porous gas bearing....B 613
YANG, A. T.
Application of dual-number quaternion algebra to the analysis of spatial mechanisms (AC)....AM 223
Static force and torque analysis of spherical four-bar mechanisms....I 221
YANG, WEN-JEI
Free convective flow of Bingham plastic between two vertical plates....HT 319
Interfacial heat and mass transfer in a suddenly pressurized binary liquid-vapor system....I 413
Possible similarity solutions for heat and mass-transfer equations in logarithmic spiral flows....AM 454
YAO, JOHN C.
Bending due to ring loading of a cylindrical shell with an elastic core....AM 99
Nonlinear elastic buckling and parametric excitation of a cylinder under axial loads....AM 109
YEH, HSUAN
On detached shocks for blunt bodies at small angles of attack....AM 271
YEH, HSU-CHIEH
Free convective flow of Bingham plastic between two vertical plates....HT 319
YOUNG, F. J.
Calculation of surge pressures in pipelines carrying viscous liquids in laminar flow....B 266
Distortion of short pulses in tapered-tube pulse transformers. Part 1—inviscid liquid....B 465
Distortion of short pulses in tapered-tube pulse transformers. Part 2—viscous liquid....B 471
YOUNG, W. E.
Fuels for advanced power-generation systems....P 125
YOUNG, W. T.
Pressure surges in magnetoviscous flow....B 478
YOVANOVICH, M. M.
On the mechanism of contact between metal surfaces—the penetrating depth and the average clearance (D)....B 673
YU, YI-YUAN
On the form of variationally derived shell equations (D)....AM 469
YUAN, S. W.
Laminar pipe flow with mass-transfer cooling....HT 252

Z

ZAID, M.
An analysis of axially symmetric coupled tube sheets (D)....AM 474
ZAKER, T. A.
Stress waves generated by heat addition in an elastic solid....AM 143
ZERKLE, R. D.
Transient temperature distribution in a slab subject to thermal radiation....HT 117
ZIMMERMAN, JOHN R.
Analytical synthesis of function generators using the slider-crank inversion (D)....I 330
An iterative method for the displacement analysis of spatial mechanisms (D)....AM 220
ZUBER, N.
Average volumetric concentration in two-phase flow systems....HT 453